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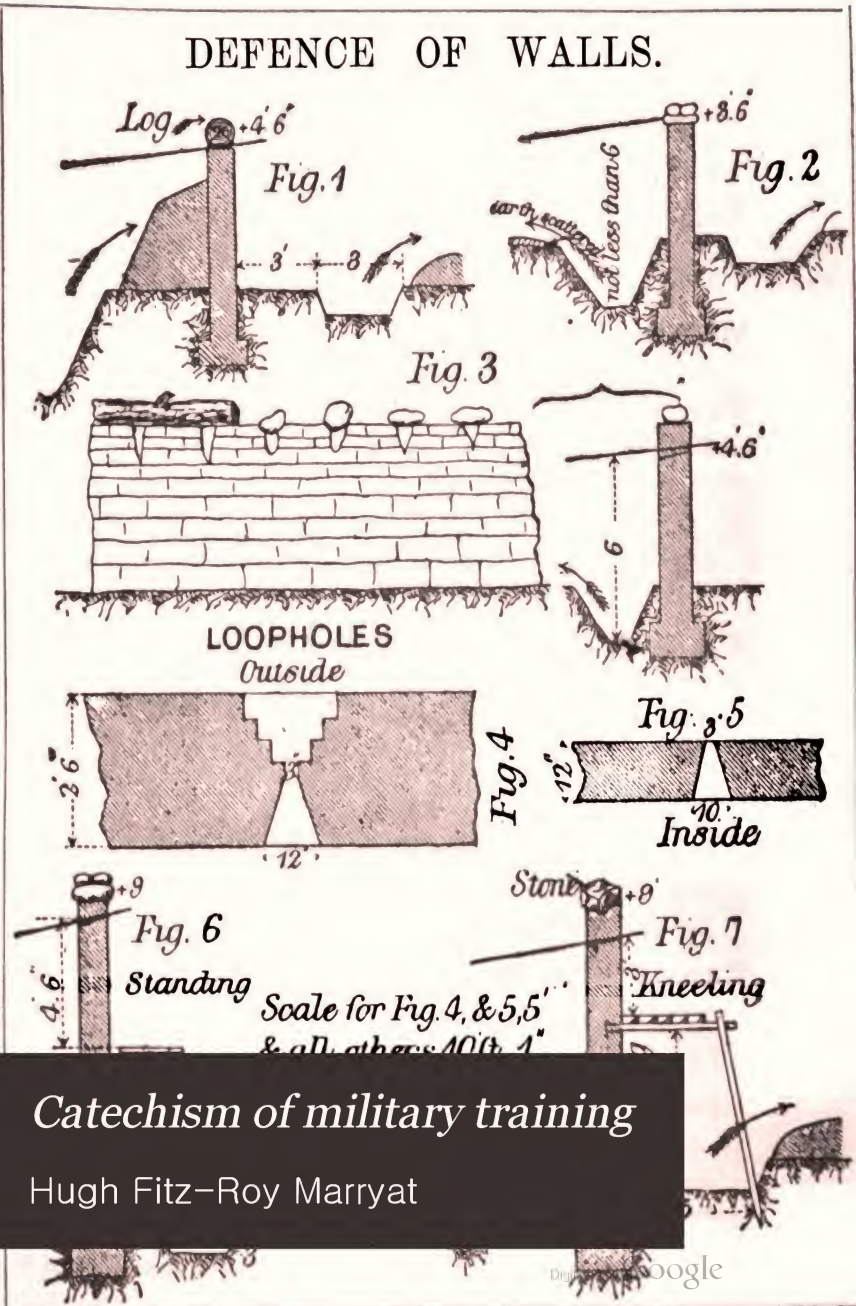

Catechism of military training

Hugh Fitz-Roy Marryat

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GALE AND POLDEN'S MILITARY SERIES.
VOL. XXI.

CATECHISM

OF

MILITARY TRAINING.

COMPILED BY

MAJOR H. FITZ-ROY MARRYAT,

The Berkshire Regiment.

PRINTED AND PUBLISHED BY

GALE & POLDEN, BROMPTON WORKS,

Chatham.

PRICE—2/-; or 18/- per dozen.

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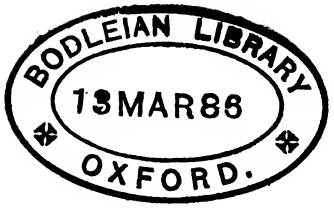

CHATHAM:
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1884.

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PREFACE.

This little Work has no claim to be considered original.

It is simply a compilation intended to facilitate Officers and Men in going through the Syllabus laid down by G.O., 30 of 1st March, 1884.

No pains have been spared by the Compiler in accomplishing this object, and to ensure correctness in every detail.

He ventures to believe that the accuracy of the work may be thoroughly relied on, and he sincerely trusts that he may be the means of placing before every Non-commissioned Officer and Man, a little knowledge which they will thereby find easy to acquire, and which may result in the improvement and development for war of that splendid piece of Nature's handiwork the British Soldier.

H. FITZ-ROY MARRYAT,
Major, The Berks Regiment.

Chatham,
May 15th, 1884.

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(Specially issued, 27th February, 1884).

G.O. 30.—Military Training of Soldiers.

The Field-Marshal Commanding-in-Chief desires to express his satisfaction with the manner in which General officers commanding, commanding officers, and officers of all grades have assisted in giving effect to the military training of soldiers prescribed by G.O. 50 of 1883.

Great interest has been generally evinced by all ranks in the company training, and considerable progress made; but much remains to be done.

The following instructions will regulate the training from the 1st March next.

I. The course will be limited to one month.

II. It will be conducted between the 1st March and 31st October.

III. A Syllabus of the course of instruction has been approved and will be furnished to all concerned.

IV. This course will be generally adhered to; but where special circumstances, such as the absence of proper training ground, necessitate a deviation from it, General officers will make such alterations as may appear expedient, taking care that the whole period of instruction is fully utilized.

V. Considerable scope is left to commanding officers in arranging details, to which their careful attention is directed. In making their arrangements, the principle will be followed that each elementary subject must be in turn completely mastered before another is proceeded with. When mastered, it will afterwards be only incidentally reverted to in combination with more advanced subjects.

VI. During inclement weather and where no special accommodation or drill shed is available, instruction will be given in the barrack room by means of lectures, explanations and questioning.

VII. Every available officer, non-commissioned officer and man will be present with his company, and relieved of all other duties while under instruction, with the exception only of bandsmen and such as are exempted from the Annual Course of Musketry (*see* Rifle Exercises and Musketry Instruction.)

VIII. Men in hospital, prison, &c., who are unable to attend with their companies will, as soon as available, join the next company struck off for training.

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IX. When recruits join the head-quarters of a battalion from the depôt, the company first to receive recruits will be completed up to its full establishment, any surplus being posted to the company next in order, and so on.

X. To ensure every man being properly accounted for, returns on Army Form B 214, will be forwarded to the General officer commanding, on the completion of the training of each company.

XI. Where battalions are broken up in consequence of companies being detached from head-quarters, or where the nature of the duties will not allow of one company per battalion being struck off for training without reducing the number of nights in bed for men of other companies below three, General officers commanding will make the best arrangements in their power for carrying out the spirit of these regulations.

XII. To enable officers to give instruction of real value, each day's work should be carefully prepared previously by company commanders, and an outline of it given to the other officers and non-commissioned officers of the company.

XIII. Each practice in field training will be based on a definite supposition and object, and will be carried on, as far as possible, under the conditions of actual warfare.

XIV. Explanation will in all cases precede practice on the ground, and should form an important part of the instruction.

XV. Instruction will extend over at least four to five hours daily, and for practical work on the ground, short parades should be avoided, a period of from two to three consecutive hours generally desirable.

XVI. Blank ammunition will be used in practising the more advanced exercises.

XVII. Whenever practicable, General officers will personally supervise the troops under training, and test the merits of the instruction imparted, by exercising the companies of different battalions against one another.

XVIII. It is anticipated that the tents and tools whose issue is already authorized (Equipment Regulations, para. 365, and Clause 89, Army Circulars, 1883), will, under ordinary circumstances, be sufficient for the instruction laid down in the Syllabus. Should any increased issue be required, a special application should be made through the General officer commanding the district.

XIX. Any provisions of G.O. 50 of 1883 inconsistent with this order are hereby cancelled.

By Command,

WOLSELEY, A.G.

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CATECHISM

OF

MILITARY TRAINING.

1st Week.

Company Drill (Part II., Sects. 16 to 20, "Field Exercises").

The tactical employment of the company in action, movements in battle formation on a road, a plain, and in enclosed country; the attack and defence of a position, a defile, and a wood; action against cavalry and artillery; as escort to guns and to a convoy. Fire discipline; the supply of ammunition.

Extended order (Part II., Sects. 21 to 26, "Field Exercise"). Explanation of the general principles and distinction between this and the attack formation; the bugle sounds and signals to be learnt; the several movements to be practised first in detail, and then in varied ground, the object of each being pointed out.

COMPANY DRILL

(Part II., Sections 16 to 20, "Field Exercises").

Q. When is a company required to countermarch?

A. When front is changed to the rear.

Q. What commands are given for countermarching a company from the halt, and by whom?

A. The instructor will give the words Countermarch, Ranks Right and Left Turn, Quick March, Company Halt, Front—Dress.

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Q. At Countermarch, what is done by the directing guide and by the guide on the reverse flank?

A. The directing guide will turn about and take a pace to his front, the guide on the reverse flank will place himself one pace from that flank and turn inwards.

Q. At Ranks Right Left Turn, to which flank do the captains and supernumeraries turn?

A. To the reverse flank.

Q. When do the guides change flanks?

A. On the word Front being given.

Q. When a company is on the march, and is required to countermarch, how does the directing guide move, and at what word of command?

A. The instructor will give the words Countermarch, Ranks Right and Left Turn, and as soon as the last word has been given the directing guide will turn to the right-about, take a pace to his front, and mark time; the other guide will move as at the Halt, but marking time.

Q. When it is not considered necessary to countermarch, but to have the rear rank in front, what is done?

A. The command Change Ranks is given, on which both ranks turn about and number off.

Q. How will the captain and supernumeraries move?

A. Captain and supernumeraries turn outwards and double to their places round the new rear.

Q. When a company is advancing in column by the left, and three files are required to be broken off from the directing flank, what words of command are given, and by whom?

A. The instructor will give the caution, Break Off Three Files from the Left, the captain will give the executive words, Three Files on the Left, Right Turn, Left Wheel.

Q. When files break off from a flank, what is done by the guide and marker of that flank?

A. They will touch in to their flank as the files break off, the marker covering his guide.

Q. What is done when the files broken off amount to a half-company?

A. They will form fours by command of the captain (fours, deep).

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Q. When files move up after breaking off, what commands are given?

A. The instructor gives the caution, Files to the Front; this is repeated by the captain, and the men double up.

Q. What are the words of command for forming company square, and by whom are they given?

A. The instructor gives—Form Company Square. The captain gives the executive words Fours—Deep, On the Centre Close, Quick March.

Q. As soon as the closing is completed, what is done by the officers and men?

A. The men will at once fix bayonets or swords, and flank fours will turn outwards; the officers and sergeants and supernumeraries forming in rear of the company.

If surrounded by cavalry, the officers and sergeants move in between the fours, *i.e.*, in the centre of the square, the two rear ranks turning about, the outer rank only of each side of the square kneeling.

Q. What is done on the order Prepare for Cavalry, supposing the rear ranks of the company have not turned about?

A. The second and fourth ranks will take a pace of 10 inches to their right front, the first and second ranks will then fall on the right knee, bringing the butt of the rifle against it, the point of the bayonet to be about the height of a horse's chest; the third and fourth ranks will come to the Ready Position, and the sergeants will fix swords.

Q. What order of firing should be observed on the approach of cavalry?

A. The men may be ordered to fire independently, or by volleys; or the kneeling ranks only may be required to fire.

Q. Suppose the men are required to fire independently, what will be the command given?

A. The captain will name the number of rounds to be fired, say Three Rounds, Independent Firing at (300) yards, Ready—Commence.

Q. When it is required to re-form company after firing in company square, how does the movement proceed?

A. If the company has been firing independently it will receive the order to Cease Fire from the captain (or Bugle Sound), followed by Order Arms (the flank fours turn to their front), Unfix Bayonets (or Swords) from the Centre Re-form Two Deep—Quick March, on which the men move outwards by the side step, the officers and sergeants resuming their places.

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Q. Describe how a company acts as a central company of a column on the march, on the instructor's caution Form Square or Four Deep—Form Square?

A. On the instructor's caution and command, As a Central Company of a Column, Form Square—Quick March, the captain gives the executive command, Half-companies Outwards," on which the half-companies wheel outwards, halting when square, and fixing bayonets (or swords) without word of command. If four deep square is ordered the captain's command would be Sections Outwards, the two inner sections closing on the outer on completing their wheel.

Q. How is the company re-formed from square?

A. On the instructor's command Unfix Bayonets (or Swords), followed by Re-form Column, the half-companies turn about; if fours deep, the sections turn about, and the two inner sections move to section distance from the outer. The instructor gives the command Quick March, on which the left guide places himself on the left of the company turning towards the front of the column, and the half-companies (or sections) wheel into company, receiving the words Halt—Front—Dress, from the captain when square.

Q. Describe how a company, advancing in column by the left, may be formed into half-companies without halting.

A. On the instructor's caution, Form Half-companies, the captain gives the executive words, Right Half-company to the Front, remainder Right Turn, the left guide giving the command Half Left Turn, to the Left Half-company, when its leading file is in rear of the centre of the right half-company, and when in column, Front Turn—by the Left.

Q. Describe how a column of half-companies marching by the left may be formed into a column of sections.

A. On the instructor's caution Form Sections, the captain gives the command Right Sections to the Front, remainder Right Turn, the guides and markers giving the command, Half Left Turn, to the left sections, when their leading files arrive in rear of the centre of the right sections, and when in column, Front Turn, by the Left.

Q. When a company is in column of half-companies, where should the captain, guides, and markers place themselves?

A. The captain's place is on the reverse flank, clear of and between the two half-companies. The guides should be on the directing flanks of their own half-companies, and the markers two paces in rear of the flank files.

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Q. Where should the captain, guides, and markers place themselves when the company is in column of sections?

A. The captain's place is on the reverse flank, clear of and between the sections, the guides on the directing flanks of the outer-sections, and the markers on the directing flanks of the inner sections.

Q. How is a company advancing in column of sections formed into a column of half-companies?

A. On the instructor's caution, Form Half-companies, the captain gives the executive command Rear Sections to the Front, on which the sections move up into line with the leading sections by the diagonal march at the double, turning to their front and taking up the quick time, the guides and markers taking post at the same time.

Q. If the instructor required a company in column of sections or half-companies to become a company as in line, how should he proceed?

A. If the company was on the march, the column would wheel into line on the instructor's command, By Half-companies (or sections) Left (or right) Wheel into Line, Halt, or forward by the right when square, the guides and markers taking post accordingly.

Q. With what object are men formed in extended order?

A. For purposes of attack, and skirmishing.

Q. What should be explained to the men as to the object of skirmishing?

A. The object of skirmishing, or of moving men in extended order, is that they may, when feeling for an enemy, take advantage of anything likely to afford them cover, so as to inflict the greatest loss on the enemy with the least risk to themselves.

Q. What is the difference between extending for skirmishing and extending for attack?

A. For skirmishing, the extension may be from the right, left or centre, or from any named file, and for any number of paces, according to circumstances; men so extended may run or creep to any cover that offers, during the advance or retirement. For the attack, the extension is always from a flank, and at four paces interval; men so extended are not to diverge to the right or left.

Q. What is the object of moving to the attack in extended order?

A. The object of moving to the attack in extended order is that the attacking troops may be gradually brought up with the least possible loss to a point sufficiently near the enemy whence the hottest fire can be poured in, and the final assault by the battalion, as a compact body, can be made.

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Q. Under what circumstances are men permitted to seek cover during an attack?

A. They are to avail themselves of the slightest inequality of ground as cover, and avoid all unnecessary exposure; they are not however to seek cover if by so doing they lose their interval, and fail to move direct to their front; if exposed to artillery fire alone, they must not seek cover except by word of command.

Q. Give the names and numbers of bugle sounds used in extended order;—

1. Extend	6. Fire	11. Alert	15. Lie down
2. Close	7. Cease fire	12. Prepare for Cavalry	16. Rise
3. Advance	8. Assemble		17. Charge
4. Retire	9. Incline	13. Quick	
5. Halt	10. Wheel	14. Double	

Q. How do men extended act when the "Alert" is sounded?

A. The "Alert" (No. 11) implies unexpected danger; when it is sounded, men, if in movement, at once halt and wait for further orders.

Q. How are the right, left, and centre indicated by bugle sounds in skirmishing?

A. By distinguishing G's; one G denotes the right of the line, two G's the centre, three G's the left. The G or G's preceding any sound denotes the part of the line to which it applies. For instance, two G's, followed by the "Extend," signifies to extend from the centre; one G followed by the "Close," to close to the right; one G followed by the "Incline," to incline to the right; three G's, followed by the "wheel," to wheel to the left.

Q. If the "Incline" were sounded twice in succession, how should an extended line act?

A. A double "Incline" signifies a direct turn to the flank indicated by the G or G's.

Q. When the fire is combined with any other call, what caution should be observed?

A. It should be the last sounded, for if men were ordered to fire they might not hear the second call.

Q. Do supports move by bugle sounds?

A. Supports invariably move by the order of their commander; bugle sounds are intended for men extended only.

Q. For what purpose are whistle sounds used in skirmishing?

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A. **Whistles are to be used only to attract the attention of troops** to orders about to be given, or to preconcerted signals. Whistle sounds are not to be repeated.

Q. What is the number and meaning of the signals used in extended order?

A. 1. Advance, wave of the hand or sword.

2. Reinforce, head-dress held above the head, and, if necessary, waved.

3. 4. { Half right / or / Half left, } hand, or sword, held out horizontally in the required direction.

5. The rifle or sword being held up perpendicularly with the head-dress on it, will indicate that no enemy is in sight.

6. The rifle or sword, held up horizontally will signify that an enemy is in sight; if held up steadily in this position it will be understood that only very small bodies, such as vedettes and outpost sentries are to be seen.

7. If lowered and raised in the same horizontal position once, twice, or oftener, the strength of the enemy, as seen by the signaller, will be denoted. Signals should be repeated by connecting sentries.

TACTICAL EMPLOYMENT OF INFANTRY IN ACTION.

Q. What is the tactical unit of infantry?

A. The battalion (war strength 1097 of all ranks).

Q. What are the weapons of the infantry soldier?

A. The rifle (Martini-Henry) and bayonet, weighing together about 9 lbs. 12 ozs.; their combined length about 6 ft. The former is sighted up to 1400 yds.; but is effective for large objects up to 3000 yds. Each man carries 70 rounds, and 30 rounds per man more are carried in three carts following the battalion; ten cartridges weigh 1 lb. 2 ozs.

Q. What are the advantages of the infantry soldier over other arms?

A. (*a*) He can fight either at a distance or at close quarters.

(*b*) He can fight on any kind of ground; which neither the cavalryman nor the artilleryman can do; and he can come into action more easily and rapidly than either of them.

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(*c*) He can fire while moving about to a greater extent than other arms of the service.

(*d*) He has greater independence of circumstances.

(*e*) He is equally fit for attack and defence and so is independent of other arms.

(*f*) Infantry have greater facility of recruiting, equipping, drilling and maintenance.

Q. What is the disadvantage of infantry?

A. The great disadvantage of infantry is that it is slow of movement.

Q. How are bodies of infantry at present organized in the British army?

A. Three battalions form an infantry brigade. Two brigades, with an extra battalion, furnish the infantry for a division. An army corps contains, besides other arms, three such divisions.

Q. What is the rate at which infantry moves?

A. The rate of marching is nearly 3½ miles an hour (120 paces or 100 yards per minute), in quick time; and 5 miles an hour (150 yards per minute), in double time. When moving in small bodies the rate would be 2¾ miles an hour; in Divisions they would only do 2½; and in Corps 2; including short halts.

Q. What must a complete field force consist of?

A. A force to take the field complete must consist of 3 Arms, viz.:—

Infantry.
Cavalry.
Artillery.

Q. What are *vedettes* and scouts?

A. A vedette is a mounted outpost sentry.

A scout may be either cavalry or infantry. In the former he may either be employed to examine ground over which troops have to pass, or else be detailed for ordinary reconnoitring purposes. In infantry he is usually a marksman sent out in advance of attacking troops to reconnoitre or to try to pick off the leaders of the enemy's advanced troops.

Q. What are the meanings of the terms *Frontage*, *Interval*, *Depth*, and *Distance*?

A. *Frontage.*—Frontage is the extent of ground occupied by the front rank of a body of troops.

Interval.—Interval is the distance between bodies of troops laterally.

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Depth.—Depth is the space taken up by a body of troops from front to rear.

Distance.—Distance is the space between bodies or troops from front to rear.

Q. What space does each man occupy in line and in extended order?

A. Each man in line occupies a front of 2 feet.

In extended order, each file or man in rank entire is allowed 30 inches.

Q. What is the frontage of a company of infantry?

A. The simplest rule is:

Number of men=number of feet run, thus:

Frontage of 1 company of 100 men=100 feet.

Frontage of a battalion of 8 companies of 100 men each in line, 275 yards; including colours and officers.

Q. What are the depths of a company and battalion?

A. *Depth.*—Depth of 1 company, about 3 yards; including supernumerary ranks.

Depth of a battalion of 8 companies in column, 244 yards.

A battalion in column of fours is equal in depth to the length of line.

Depth of quarter column of 8 companies, 38 yards.

EMPLOYMENT OF THE COMPANY IN ACTION.

Q. What are the five tactical stages of the attack by the formed body of infantry?

A. 1. Reconnaissance of the enemy and ground.

2. Disposition for the attack.

3. Advance to effective ranges and opening fire.

4. Concentration of fire at telling distances, and flank attacks.

5. Occupation of the enemy's ground; or retreat to previously chosen place of assembly.

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Q. The enemy's position having been reconnoitred, how should the company be formed for attack?

A. The fighting line, say one section; the supports, say one section; the reserve or main body, say half the company.

The section extended as fighting line should be under the command of its own sergeant. The general command of the fighting line and support would be given to the senior lieutenant.

The reserve should be under the junior lieutenant.

The company commander, or captain, has a general direction over the whole of the movements.

Q. Can the captain issue fresh orders after action has begun?

A. When the leading sections are committed to action, fresh orders are confusing and difficult to issue, so they should be avoided as far as possible.

The leaders of the advanced line must be made to thoroughly understand what they are to do, and then they should be given freedom of action.

Q. What will be the duty of the fighting line?

A. To keep up a steady, continuous fire on the enemy till a final rush is made to carry the position.

Q. What will the support do?

A. As the attack develops and the enemy is neared, the support must reinforce the fighting line in order to maintain the fire and prevent it slackening. The support must also be prepared to resist a flank attack upon the fighting line as it advances; and generally to give strength and confidence to the leading extended section.

Q. What is the object of this mode of advance?

A. To bring up the attacking force with the least possible loss to a point near enough to the enemy to make the assault.

Q. What will the reserve do?

A. Follow the support in as compact formation as the ground will cover till within close range, when extended order, or that combined with groups may be assumed.

Q. At what distance from the enemy will the support have become merged in the fighting line? And what must then be done?

A. At about 200 yards. The enemy must now be subjected to the hottest possible fire as a preliminary to the assault.

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If the commander decides to make a frontal attack, he reinforces with his reserve or a portion of it, fixes bayonets, and attempts to carry the position. The whole company advances in one line till within charging distance—say 50 yards—when the final rush, with bayonets down, would be made.

Q. How would the fighting line advance while beyond effective range?

A. In extended order by files, at four paces interval; on the order being given to commence firing, the rear rank moves up so as to form rank entire.

Q. What may the fighting line be compared to?

A. A pliable chain, sometimes stretched tight, sometimes relaxed, and conforming to the curves of the ground, but always connected.

Q. By whom should the fighting line be preceded?

A. By a few scouts who would be skilled shots.

Q. In what formation should the support advance?

A. As a general rule it should conform to the movements of the fighting line, keeping in rear of the centre; while out of effective range it may be in column.

If it is desirable to watch both flanks, the support may march in two columns of fours, one in rear of each extreme flank of the fighting line.

Q. What would be the general distance of the support from the fighting line in the earlier stage of the advance?

A. From 100 to 150 yds. in open ground; as the support comes within effective range (700 yds.) its commander should cause it to extend into open order by files, or break it up into groups unless the ground affords shelter from the enemy's fire, when a further advance may be continued in column formation.

Q. What point is to be specially noted regarding the distance of the support from the fighting line?

A. It must be steadily decreased as the latter approaches the enemy.

Q. What should be the position of the half-company forming the reserve or main body?

A. It should follow the support in column of fours, or sections, at a distance, in open ground while out of effective range, of from 200 to 300 yards.

At 800 yards from the position, unless cover is available, the reserve must be broken up into groups, or extended, during its further advance.

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As the support nears the fighting line, the reserve must also decrease its distance from the front so as to take the place of the support when the latter reinforces the fighting line.

Q. How will the reserve be enabled easily to creep up?

A. By the frequent halts for shelter and slow firing made by the fighting line.

Q. When the two front lines have merged into one, how far in rear should the reserve be?

A. About 100 to 150 yards behind the fighting line. Here it should be kept well under cover, lying down till wanted; at this stage also it will probably be extended with files at one pace interval.

Q. What is the best way for the supports to reinforce the fighting line?

A. The support should be brought up wholly or in part to either flank of the fighting line, in this manner the men of the original fighting line are kept more directly in hand than if mixed up with fresh men all along their line. In the case of the support being of a different company from the fighting line this is especially desirable.

Q. How may a weak portion of the extended line be strengthened if necessary?

A. The support, or a portion of it may sometimes be brought up in a formed body to the immediate rear of the front line, which is kneeling or lying down, and fire over it by volleys.

Q. Should the commander of a small detachment endeavour to attack the flanks of his adversary?

A. Yes, whenever anything like equality of forces exists; and, further, the section leaders should lose no opportunity of taking the enemy's line, or part of it, in flank by small groups of men judiciously placed.

Q. When should the reinforcement by the reserve take place?

A. Not until the fighting line has been reinforced in front by the support, and is unable to push on within 100 yards of the enemy's position.

Q. When a company is ordered to take up a position of *defence* what would it do?

A. It would advance to its ground in the usual order of march, unless within reach of the enemy when it would move in fighting order preceded by scouts.

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When about 150 yards from the position, the leading section is halted, and the scouts are reinforced so as to enable a complete reconnaissance to be made to see if the enemy is anywhere near.

If all is well, the leading section is marched up to the position which it occupies from flank to flank, the men getting under cover till the front line is finally fixed.

The commander of the company having come up, looks to the approaches, the flanks, and the best means of retreat and then rapidly decides upon the position of his fighting line.

This might be one section posted under cover so as to see the ground in front. A few well advanced posts may be occupied by groups if the ground is favourable so as to make the enemy show his hand.

Q. If no cover is to be found for the fighting line what must they do?

A. Lie down and, if possible, make shelter trenches.

Q. Where should the support be?

A. In as sheltered a position as possible in rear of the fighting line and close at hand.

Q. Where should the reserve be? and what would it consist of?

A. It would consist of half a company; it should be placed in rear, centrally at first, but as the enemy's attack is developed, it may be moved either wholly or in part to the most favourable position for reinforcing a threatened part of the front line, repelling a flank attack or making a counter attack.

The value of even the simplest shelter trench should never be lost sight of in defending a position.

Q. What are the five stages into which the defence may be divided?

A. 1. Occupation of position.

2. Preliminary resistance by fighting line to enemy's advance

3. Preparations to resist enemy's main attack.

4. Resistance to main attack; resistance to flank attack; counter attack upon the enemy.

5 Repulse of assault and pursuit of the enemy or defeat and retreat.

Q. Describe the attack on a Field Work.

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A. The attack on Field Works which are open to assault, may be executed by *Surprise*, or by *Open Force*. An attack by surprise can only take place when the advance of the assailants is concealed by fog or darkness, or by irregularity in the form of the ground, as in mountainous countries, and when proper precautions have not been taken by the Garrison.

In order to succeed in this method of attack, the enemy should be deceived, so as to lead him to imagine that some totally different enterprise was contemplated. Night is the most favourable time for a surprise, as the preliminary movements and arrangements are concealed by the darkness. The actual attack generally takes place shortly before daylight, as if successful, the assailants are assisted by the daylight in making the necessary arrangements to retain possession of the works.

If the object of the attack be merely to hold the works for a sufficient time to destroy the defences, spike the guns, explode the magazines, &c., &c., the attack may be executed early in the night, and the works be abandoned before daylight.

In the attack of Field Works by open force, it is desirable to advance against several points at the same time, in order to distract the attention of the garrison; of these attacks some may be false, but should, however, be converted into real attacks, if the enemy appears weak or hesitating on the points threatened; one attack ought generally to be directed on the rear of the work, if open at the gorge, as such an attempt will lessen the confidence of the defenders.

It is of the utmost importance that parties for an assault should be detailed by regiments or brigades and not by detachments.

As many assaulting columns should be formed as there are points to be attacked. Each column is usually divided into three bodies, viz.:—Covering Party, Storming Party, and Reserve.

The covering party precede the storming party in skirmishing order, and endeavour to keep down the fire of the works attacked; they advance up to the edge of the ditch, profiting by any natural cover they can find.

The storming party about 80 yards behind the covering party, are usually preceded by a party of sappers or pioneers carrying axes, crowbars, bags of powder, &c., to surmount the obstacles that may be expected to be encountered, and are followed by a small party of artillery-men to spike any captured guns, or, if necessary, to turn

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them on the defenders. The storming party should not be allowed to fire, but should be moved to the assault as rapidly as possible, without putting them out of breath. A rapid assault raises the spirits of the assailants, and also lessens the duration of their exposure to fire.

Q. How is a Field Work defended?

A. In occupying a Field Work for defence, the first duty of an officer is to take the necessary precautions against an attack by surprise; with this view his detachment should be told off to the positions they are to occupy, so that at the first moment of alarm every man may repair, without confusion or delay, to his proper post. By day there is slight danger of surprise, provided that the commonest precautions are taken; but at night too great vigilance cannot be exercised, particularly in bad weather, which is most favorable for such an enterprise. A sentry should, as a general rule be stationed in every salient of the work; pickets and vedettes should be posted in advance, and, if necessary on the flanks, to watch every road or path by which an enemy could advance, taking care that they are not so far apart as to allow an enemy to pass between them. Frequent patrols to the front and flanks should be made at uncertain intervals, both to assist in preventing surprise and to keep the advanced posts properly on the alert. Heaps of dry brushwood, straw, &c., to be lighted when the pickets are compelled to withdraw, may be prepared at intervals; in a wet stormy night, however, these cannot be depended upon, and the alarm will usually be given by the pickets firing on the enemy.

A Reserve, varying from one-fourth to one-sixth of the garrison, according to the situation of the work, its liability to assault, &c., should be provided in addition to the men required to man the parapets. The reserve should be held in readiness, under suitable cover, to attack the enemy on his *first* penetrating into the work, which usually will be in small numbers, and in no regular formation.

The reserve follows the storming party a short distance in rear (100 to 200 yds.), to act as circumstances may require; it may repel attempts to aid the defenders, reinforce the storming party if they succeed in entering the work, or it may afford them a rallying point, and cover their retreat if they fail. The officer commanding is with the reserve.

The troops destined for the assault are drawn up in the cover nearest to the works.

Artillery used in the attack of Field Works should be placed when possible in the prolongations of the faces of the works, in order to enfilade them, and to destroy their accessory

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defences, such as traverses, abattis palisades, &c. They should continue their fire on the works till the advance of the storming columns has rendered it necessary to cease, when it may be directed to the rear of the position against any troops that may be supporting the works.

The signal for the assault being given, which would be done when the artillery have produced the requisite effect, the attacking columns march to the assault, in the direction of the capitals, in the before mentioned order of covering party, storming party and reserve. The advance being made on the capitals, allows the artillery to continue their fire until the infantry have arrived close to the works, and also exposes the latter to less fire than they would experience elsewhere.

DEFILES.

Q. What is the general description of a Defile, and what are its various characteristics?

A. A defile may be defined as any portion of ground that can only be traversed by troops on a front narrow in proportion to their numbers. Thus a road with high banks, a bridge, and of course a mountain pass would come under the definition of a "Defile." It has a great importance in a military point of view, as an inferior force holding it may successfully resist a superior one. For the impossibility of engaging more than a certain number of men on either side, prevents the stronger from developing its superiority. But this advantage only exists as long as the defence is closely connected with the Defile, and when the enemy is compelled to force a passage through it. For could he establish himself at the farther side by any other means, the Defile as a defensive position, would clearly no longer exist. Hence its value depends upon its impossibility of being turned.

Q. How can a Defile be usually turned?

A. By the attacking force diverging sufficiently widely to do so, so that the problem becomes one of space, and therefore of time, and of counter attack.

Q. In examining the influence Defiles exercise on military operations, into what heads may they usefully be divided?

A. I. Those of considerable length whose flanks are closed, but, though difficult, accessible; such as Mountain Passes, Thick Forests, &c.

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II. Those of considerable length whose flanks are open and accessible: such as Causeways.

III. Those of considerable length whose flanks are open and accessible; such as Hollow Roads, Railway Cuttings, &c.

IV. Those of an inconsiderable length whose flanks are open, but inaccessible; such as "Bridges."

Q. What circumstances regulate the defence of a Defile and for what two purposes may it be held?

A. The objects for which it may be held, are, for the use of the defenders, or simply to prevent the enemy using it.

In the first case it would be preserved as an outlet to the side holding it which would restrict the amount of obstacles that could be created in the enemy's advance. In the second case the passage may, if necessary, be rendered wholly impassable.

Q. From what three different positions may a Defile be defended?

A. I. On the side nearest the enemy in Front.

II. In the interior.

III. On the side furthest from the enemy in Rear.

In the first case the Defile adds little power to the defence.

In the second case circumstances must be exceptional that would require the defence to be organised within the Defile. But when it is of some length, positions may be found in the interior of such strength as to afford advantages unobtainable at the entrance. In the third case, a position in rear of a Defile is usually the strongest the defenders can assume; it enables them to concentrate from a wide front a great superiority of fire on the enemy advancing on a very narrow one, and the advantages should be so great, as to make it impossible for the attacking force to contend against it. The special advantages of such a position must *never* be lost sight of, namely, of crushing the head of the enemy's column in its attempt to issue from the Defile.

Q. How is a retreat through a Defile usually conducted?

A. The approaches to the entrance should be held by infantry whose flanks should wind back so as to rest on the obstacles creating the Defile. The disposition of the force must be dependent on the nature of the ground, so that in some circumstances it will form a continued line, while in others the occupation of special points will provide defence for the remainder. Behind this barrier the rest of the force moves *rapidly* through the Defile, the cavalry first,

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the artillery next, and finally the infantry. As soon as the main body commences to emerge from the Defile it should *at once* dispose troops to defend the outlet so as to prevent the enemy from issuing at the heels of the rear guard. The latter should hold its ground at the entrance at all hazards, until the safe passage of the main body is assured.

Q. How is the force holding the entrance to be withdrawn?

A. Should the enemy attack along the general line of front, and the ground offers no specially strong point for defence, then by commencing the retreat from the flanks, and gradually contracting the front occupied the defence will be best conducted. Should the enemy press hard upon particular points then these must be maintained while the retreat is commenced from a direction in which this pressure is not so felt, as, should the enemy break through at the point where he develops most force, then the remainder would be in danger of being cut off.

Q. Where would the defence of a mountain Defile be usually organized, and why?

A. At the entrance of the Defile itself; infantry occupying the heights, will command the approaches, and secure the flanks, while the mouth of the pass, strongly barricaded, closes the entrance. Moreover if the heights command the pass (which they usually do) the latter cannot be traversed while they are held, so that this forms a position of great strength, and affords favourable conditions of retreat. For a force retreating can only be followed up through the pass according as the heights on each flank are cleared of the enemy. Here the defence will almost entirely fall on the infantry, as guns can be seldom got on to the heights, and but few used in the pass, where there would be considerable danger in risking them. If they do not command the pass, then the strength of the defence must be concentrated in the interior, for if that be forced the enemy can advance freely through the Defile, and thereby shortly turn the defence of the heights.

Q. What is the great aim in defending an outlet of a Defile or Pass?

Crushing the head of an enemy's column as it arrives, and for this purpose the heaviest possible fire must be concentrated on him and adjoining ground. Here the artillery play the principal part, and it should be so disposed as to command thepass itself, and to furnish a cross fire on the ground outside it; but the fire of the infantry is only secondary to that of artillery, and frequently in mountain warfare it is on the infantry that the defence will mainly rest.

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Q. What would the general system be in attacking a Mountain Defile?

A. First clear the enclosing heights of the enemy with part of the forces, then move the remainder rapidly through the pass. Occasionally when the strength of the defence lies in the pass itself, then and *then only* can heights be neglected. The main body must at all times move with great caution, being always preceded by a strong detachment of infantry attended by a couple of guns, so as to aid the advance party to establish itself at the outlet. They should be rapidly supported by more infantry, followed by more guns, and according as these establish themselves beyond the Defile, the main body will move rapidly forward in support.

Q. What principles regulate the attack of a bridge?

A. First, to subdue the fire of the defenders by artillery and light troops, and then to assault the bridge by a strong column of infantry formed on a front equal to the width of the passage. The assault, once entered, on should be prosecuted with the utmost resolution; and if successful must be rapidly supported, and the action of all three arms will be required to prevent the enemy's reserves from overwhelming the leading troops, and throwing them back into the defile.

Q. What is the most advantageous position for the defence of a bridge?

A. In rear of it, but circumstances may require it to be defended from the enemy's side; sometimes part of the forces push beyond the bridge to occupy buildings that offer advantages for retarding the enemy. The difficulty of the defenders in retreating across the bridge if forced is the objection to this plan, and, besides in retreating they may be so closely pursued by the enemy that the latter may gain the passage of a bridge. When the course of a river bends towards the enemy on both sides of a bridge it offers the greatest advantage to the defenders.

Q. If an officer was ordered to hold a small bridge with his company, how would he do it?

A. Make a strong barricade across it at the end nearest to him with a parapet to fire over high enough to prevent the enemy using it.

If telegraph wire is available he may make an "entanglement" by fastening it across and across about eighteen inches from the ground (or the enemy's side of the barricade).

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He should detail parties to either flank in extended order; and if no trees or other cover is at hand they should entrench themselves. If the bridge is of wood some of the planks might be carefully removed (not destroyed) and put aside till required.

Should there be any boats or rafts on the river, they should be secured by the defenders and kept on their side under cover of their fire.

If possible all cover should be cleared away on the further side of the bridge.

After retiring over a bridge it should be blown up, or if of wood burnt, the banks should then be occupied, and a heavy fire maintained on the enemy, so as to prevent him from attempting to repair it.

WOODS.

Q. What are the principal advantages of Woods?

A. They afford concealment from the enemy's view, and the trees afford a certain amount of shelter from his bullets. They keep an enemy in ignorance of the disposition and strength of the force holding them, and place him at a great disadvantage in attacking; their size should admit of their being fully occupied, else they might aid the enemy in turning the position.

Q. Previous to occupying a wood for defence, what are the six principal points to be ascertained in the reconnaisance of it?

A. 1. The length and depth.

2. The nature of its growth in the interior, and on the edges.

3. Clearings, openings, and houses within the wood, the nature of the latter, their surroundings, and how far defensible.

4. Whether the ground is hilly, level, dry, or marshy.

5. If traversed by a river or stream, to what extent it is passable and defensible.

6. Roads and paths, and their nature.

For artificially strengthening a wood, it is best to erect obstacles at its entrances and establish minor lines of defence. When the outline of a wood is irregular, those parts jutting out to the enemy are most vulnerable, and here an abattis might be placed with great advantage. All

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roads leading from the enemy should be broken up outside the wood, or barricaded at its entrance. In the border of a wood lies the heart of its defence, so that every effort should be made to strengthen it. When a wood is of some depth, it will usually be desirable to form a second line of defence. A defensive line in rear of a wood is always of importance to rally on, for experience proves how effective a fire from a position of this kind may be made, in preventing an enemy who has gained the wood from issuing from it.

Q. What should be the usual disposition of troops for the defence of a wood?

A. A line of skirmishers along the border nearest the enemy; supports in small bodies from 50 to 100 yards in rear of the skirmishers disposed with a view of speedily reinforcing the points of most importance and most likely to be attacked. These supports would be available either for filling up gaps in the front line, or moving directly against the enemy should he succeed in penetrating the wood. Such attacks should be made, when possible on his flanks or rear. A reserve, formed in one or more bodies, should be posted at convenient distances in rear of the supports at cross roads, clearings, or across a main road. The artillery of the defence should be posted so as to sweep the approaches. When the wood is of considerable size, the guns must be placed within it. When small, they should be disposed on its flanks if the ground is advantageous. Guns should be screened from the enemy's *view*, by branches of trees or other foliage, from his *fire* by épaulements, and from a *coup de main*, by abattis. Where cases occur that it would be advisable to place cavalry inside a wood, their place will usually be in rear of the flanks.

Q. How would you make your dispositions for the attack of a wood?

A. The possession of the border at some point is the first thing to be gained, as it at once puts the front line on an equality with their opponents as regards cover, so that when the attack is resolved on, it should be unflinchingly carried out. The disposition of troops for attack would be similar to that of any other strong position. The infantry front line in extended order, more or less thickly, as a real attack or feint be intended. These must be followed pretty closely by supports, either in open order or collected in small bodies. The reserves in a third line in more compact order follow in rear of the supports, and sometimes a fourth line. As soon as the border is carried by the first line, the supports should at once move forward, and the whole press

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on through the wood. The farther the assailants advance into a wood, the more difficult it is for the defenders to repel them, provided the former are fairly supported. Should they be arrested by a second line within the wood, it will then be time to pause in arranging for a further advance. The direction of the enemy's retreat generally determines the line of the advance of the assailants. Infantry should be re-formed before issuing from a wood to follow up a success. An exception to this may be made, when a second position beyond affords a refuge for the defeated troops, and a prospect of carrying it by a sudden rush exists. For the possession of this second position by the enemy may make that gained by their opponents untenable.

Q. What arm should open the attack on a wood?

A. The artillery, and their fire should be directed in the first instance on those points of the border where an attempt is to be made to force the defence. But immediately the position of the defender's guns is disclosed, they should become the target of the attacking artillery. The advance of the artillery should conform with that of the infantry, but when the further border is gained they cannot be brought up too rapidly, as they will aid in the further advance of the infantry, as well as in resisting a counter attack. But the guns should not venture much beyond the edge of the wood until the infantry decidedly gains ground, for counter attacks must still be expected, which if successful, would seriously endanger the retreat.

Q. What is the business of the cavalry of the attack?

A. To clear the ground of the enemy's cavalry, and secure the flanks of the infantry in its advance. While the latter is engaged in its attack along the front, the cavalry may try and turn the wood, and find out the nature of the ground and force of the enemy beyond it. But it must be careful not to expose itself to a fire from the wood, as that will usually be very destructive. On the infantry gaining the opposite border, the cavalry will move forward to cover its further advance from attacks by the enemy's cavalry.

CAVALRY AND ARTILLERY.

Q. What is the tactical unit of cavalry?
A. The squadron. (War strength 150 of all ranks.)
Q. How are bodies of cavalry organised?

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A. A regiment of British cavalry is divided into 4 squadrons. Each squadron is divided into two troops.

A regiment numbers 653 men, 615 horses, on war strength.

Q. What is their rate of marching?

A. At a walk, 4 miles an hour.

At a trot, 8 miles an hour.

At a gallop, 12 miles an hour.

At a walk and trot, 5 miles an hour; this is taken as the usual rate on the line of march.

Q. How are they armed and what ammunition does each man carry?

A. With sword and carbine; or sword, lance, and carbine; the sword 33 ins. long; lance 9 ft. long.

Each trooper carries 30 rounds of ammunition.

Q. What are their modes of fighting?

A. By charging, called Shock Action.

Hand to hand fighting.

By dismounted fire action.

Q. What are the advantages of cavalry?

A. 1. Rapidity of movement.

2. Power of seizing opportunities for effective action.

3. Fitness for reconnoitring and pursuing.

4. Moral effect on infantry.

Q. What are their disadvantages?

A. 1. Liability to disorder and slowness in rallying again.

2. They are dependent on the ground.

3. They have little defensive power.

4. They are expensive to equip.

5. They require long training.

Q. What space do cavalry occupy?

A. Each horse occupies a front of 1 yard.

A regiment of 4 squadrons each of 96 sabres (48 horses in the front rank) occupies a front of 228 yards.

Interval between squadrons in line, 12 yards.

Length of a horse, 8 feet, from nose to croup.

Distance between ranks, 8 feet, or a horse's length.

Depth of a squadron in line, 20 yards.

Between infantry and cavalry, intervals in line, or distances in column of route, 24 yards.

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Q. Describe the organization of British artillery?

A. *A Battery* consists of 6 guns and 6 waggons, and is divided into:—

2 Half-batteries of 3 guns and 3 waggons.

3 Divisions of 2 guns and 2 waggons.

6 Sub-Divisions of 1 gun and 1 waggon.

Column of route is guns followed by their waggons in single file.

Strength of Batteries:

R.H.A., 181 officers and men.

Field batteries, 16 pr., 200 officers and men; 9 pr., 174 all ranks; 13 pr., 175.

Garrison batteries, 142.

Rate of Marching:—

Walk, 4 miles per hour.

Trot, 8 miles per hour.

Trot and walk, 5 miles per hour.

Weapons:—

R.H.A. 9 pounder, Rifled Muzzle Loading gun; field batteries 16, 9 and 13 pr. R.M.L guns, which, however, will shortly be replaced by a Rifled Breech Loading gun of heavier calibre. The present *effective* range of the 16 pr. is about 2,500 yds.

Projectiles used. — Common shell; an elongated, hollow projectile filled with powder; it bursts into a few large pieces, and is used against troops in mass, villages, stockades, &c.; also to set fire to combustible materials; painted Black.

Shrapnel shell; is packed with bullets, and burst by a small charge of powder, used against troops in all formations, effective up to 2,500 yards; painted Red.

Case shot, a thin metal case packed with small balls, used against troops up to 400 yards only, and is never used except in the defensive.

Range.—The *useful* ranges may be taken at from 800 to 2,500 yds. At 800 yards gunners come under infantry fire. At longer ranges than 2,500 yards the effect of one's fire cannot be easily seen.

Ammunition.—9 pounder carries 148 rounds, 40 in limber and on gun, 108 in waggon.

16 pounders carry 100 rounds, 28 on gun, and 72 in waggon.

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Q. What are the advantages and disadvantages of artillery?

A. *Advantages*:—

1. Power of fighting at long ranges, and with very destructive effects.
2. Power of destroying obstacles.
3. Moral effect on troops.

Disadvantages:—

1. Bulky, complicated, and easily thrown out of gear.
2. Requires immense supplies.
3. Is powerless in motion.
4. Dependent on the ground and weather.
5. Expensive to equip and difficult to train and recruit.

Q. What space do artillery occupy?

A. *Frontage.*—The narrowest space through which guns can pass is 6½ feet.

Interval between guns in line, from muzzle to muzzle, at full interval, 19 yards.

Frontage of a field battery in line, 95 yards.

Frontage of a horse artillery battery in line, 102 yards.

Depth.—Each gun or waggon, with 6 horses, 15 yards long.

Between gun and waggon, 4 yards.

Depth of a battery in column of route, 224 yards.

Between artillery and either of the other arms, 28½ yards.

Q. What are the different kinds of artillery fire?

A. Artillery fire is said to be either *front or frontal, oblique, enfilade, or reverse.*

Front or frontal when it strikes the front of a visible object, or is delivered straight to the front.

Oblique when the object aimed at is struck in front, but not perpendicularly.

Enfilade, when the fire is directed along a rampart or line of troops.

Reverse, when it strikes the parapet or line in rear.

INFANTRY AGAINST CAVALRY AND ARTILLERY.

Q. What should guide an infantry soldier in firing at cavalry scouts and mounted officers?

A. He should try, if they are at any distance, to get a shot at them when a side view of the horse is obtained. If they are close, the horses should be aimed at when in motion, and the riders when at the halt or when in the act of turning their horses.

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Q. How should an infantry attack a cavalry man?

A. He should try to wound his horse on the flank, and attack the rider, unless he be a lancer, on the left side so as to avoid his sword arm; a lancer should be attacked on the right side and an attempt should be made to get inside his point, *i.e.* the infantry man should wait till the lancer gives his point, and then either dodge or parry, returning with his bayonet.

Q. At what distance should good infantry destroy artillery?

A. At 800 yards.

Q. Under what circumstances will cavalry attack infantry?

A. 1. When the latter are of inferior quality or demoralised.

2. When owing to foggy weather or the condition of the ground they can get so close so as to take them by surprise.

3. When the infantry are broken by the fire of infantry or artillery, or have expended their ammunition.

Cavalry will also sometimes attack skirmishers to delay their advance or to make them close up and so form a target for artillery fire.

The right flank of infantry would always be attacked in preference to the left, as the effect of fire is always greater towards the latter.

As infantry are apt to fire high, cavalry always find that advancing against them up a slight incline is rather an advantage.

Cavalry skirmishing on foot will never advance to attack an enemy's infantry.

Q. If attacked by cavalry in the open what should the infantry soldier do?

A. He should not shrink from the encounter unless the numbers against him are overpowering; in which case, if suddenly overtaken, his best chance of escaping hurt, is to throw himself flat on the ground, and his worst chance to run away.

A single infantry soldier on broken ground if he keeps his wits about him has the advantage over a mounted man.

A blow on the side of a horse's head often makes it unmanageable.

Q. Where should infantry attack cavalry?

A. On the flanks those being their valuerable points also, as they are in infantry.

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Q. How would a battalion of infantry prepare to resist cavalry

A. The formation of battalion squares to resist cavalry (says Lord Wolseley) may be almost regarded as a thing of the past; for with the long ranging arms of the day, to put your battalion into such a formation would be to give it over to destruction: small company squares, or groups of men standing shoulder to shoulder, and availing themselves of any hedges, trees, or any other obstacle there may be at hand, can now hold their own well against any number of cavalry.

Q. What should guide an infantry soldier in attacking artillery?

A. Aim should always be taken at the horses of guns when artillery is in motion. The most effective mode of stopping a gun is to shoot a wheel horse. When unlimbered, the men of the gun detachments should be fired at.

When at long range, the moment of unlimbering or limbering up should be watched for, as then the men and horses, all close together, make a good sized target.

ESCORTS TO GUNS.

Q. When are infantry employed as escort to guns?

A. Batteries will be escorted as a rule by cavalry—exceptionally, only, by infantry; or the escorts may be composed partly of cavalry and partly of infantry.

Q. What is the position of the escort?

A. Under cover at from 100 to 200 yards in rear of the exposed flank; it should never be directly in rear of a battery.

Q. When the battery is not in action, what should the infantry escort do?

A. During the advance of artillery or at the halt, it is useful to throw forward infantry skirmishers on the front and flanks to a distance of about 400 yards to keep the enemy's riflemen at a distance and to annoy the attacking guns.

Q. What are disadvantages of escorts to guns?

A. They increase the size of the mark to be fired at; and. in case the batteries have to limber up, advance or retire rapidly, they are likely to get in the way.

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To attach infantry to Field Artillery means that the battery is compelled to go at a foot's pace when very often it should go faster.

CONVOYS.

Q. Into how many heads may convoys be classed, and describe them?

A. Into two; the 1st those moving from the source of supply, in the direction of the army, for the conveyance of provisions, ammunition, clothing, &c.

2nd, those moving from the army to a distance in the rear, with sick, wounded, or prisoners. These may again be sub-divided into convoys by railway, road, or water.

Q. What general rule regulates the strength of a convoy?

A. It should be limited to what, in single file, would occupy a mile of road. When larger than this it should be divided into two or more detachments, and each move as a separate convoy.

Q. What would be the general disposition of the carriages, &c. in the order of march?

A. It should be such as would provide most safety for those carriages whose freight was of most value. If the convoy consist of carriages and pack animals, the latter should go first, so as to have the advantage of not having the road broken up by the carriages. It will often be convenient to make the carriages move two abreast, as it concentrates the escort by diminishing the length of the column, but this ought only to be resorted to when the road is sufficiently wide, so as to allow at least three vehicles abreast, and thus to afford room for other traffic, and also allow of reinforcing the escorts at any particular point. The carriages should follow closely one upon another, and no opening out allowed, except on ascending hills, when it will be sometimes necessary, if steep, to double horse them, and so move up in two detachments; a certain per centage of reserve carriages, and spare wheels, poles, &c, should always be provided. Halts should be made at regulated distances, both to rest horses and close up files, long halts to be avoided; but if the day's journey be very long, positions should be chosen for the halt, so that the vehicles can be packed, and in such order that the march can easily be resumed.

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Q. What means are adopted to ensure the safety of the convoy?

A. An escort is provided, which should consist of infantry and cavalry, and occasionally of artillery. Its strength and composition will mainly be determined by what is convoyed, the distance to be traversed, and the friendliness or hostility of the natives. The horses should not be taken out, and forage should be brought for them on the waggons.

Q. How should the escort be formed?

A. Divided into an advanced guard, rear guard, and flanking parties; and the main body would usually provide a small party of infantry for the immediate head and rear of the column.

Q. Of what is the advanced guard usually composed?

A. Of cavalry, and its patrols should reconnoitre extensively, pushing out at least five miles to the front and flanks, as early information of the enemy's presence is most important.

Q. What special precautions should be taken to protect the head of the column?

A. As at this point a convoy is most vulnerable, a small body of infantry should be posted there, to repel any sudden attack of the enemy's cavalry. A similar disposition should be made also to protect the rear of the column.

Q. Where should be the position of the main body of the escort? In what formation should it move, and give a reason for this?

A. The main body of the escort should move united; and, in an open country, its position as regards the convoy, would be about the centre, but it might move either at the head or in rear according as an attack was apprehended at either of these points. When the country is confined, and the approaches on the flank difficult, then the main body would march at either end of the column according to the direction in which danger threatened. In this case it would detach a party to guard the centre.

Q. In an escort for prisoners, how is the strength of the escort regulated?

A. Having to guard against hostility in the convoy itself, the escort should consist of ten infantry, and one cavalry soldier to every 100 prisoners, with artillery sometimes added.

Q. What precaution should be taken with regard to civilian drivers?

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A. A soldier should be told off to every two waggons as a sort of military police; as in a sudden alarm or attack they are very liable to cut their traces and go off.

Q. What are the duties of an escort on meeting an enemy?

A. It should avoid all unnecessary fighting. Yet the enemy's parties may have seized defiles or other positions commanding the line of march which it would be necessary to dispossess him of. In these cases he should be attacked vigorously, and in sufficient force, while detachments would remain close to the convoy. The latter should always continue its march when the road is not actually barred. The escort should confine itself to dispersing the enemy, and should never be led on to pursuit.

Q. If an attack is going against the escort, what measures should be adopted as regards the convoy? And what if closely pursued?

A. In the first instance an effort should be made to get away at least the most valuable portion of the convoy; if none of it can be saved, the horses should, if possible, be carried off. In the second instance a couple of waggons should be overturned in the first piece of narrow road arrived at.

Q. What constitutes the most dangerous element in a march to a convoy?

A. The passage of a defile. Before entering it reconnoitre to the front and flank. The advance guard should take up a position sufficiently beyond the defile to allow of the convoy being "parked" as it arrives on that side. If the rear is considered sufficiently secure from attack, the main body of the escort would also move forward to reinforce the advanced guard. The convoy would move through the defile as quickly as possible, as the sooner so dangerous a situation is got rid of the better.

Q. In the event of a convoy halting at the rear side of a defile while a reconnaissance was being made, how should the halt be arranged?

A. The first half of the convoy should be "parked," and the second half pushed through, "parking," as it arrives on the other side. By this time the first half will have had time to rest, and perhaps to feed, and passing the defiles in turn will resume its position at the head of the march. If the convoy passes through without halting, it should, if an attack be possible, be "parked" beyond as it issues.

Q. What are the various modes of parking (a) for a halt (b) to resist an attack?

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A. (a) The waggons should be arranged in different lines, 25 yards apart, axle tree to axle tree, poles and shafts facing in one direction, and horses picketed in front of their respective waggons.

(b) They should be drawn up either in a square or oval, formed in one or two ranks according to the strength of the convoy. If the interior space be sufficient for what is to be collected within, the formation of two ranks is preferable, if the waggons are aligned axle tree to axle tree the barrier becomes stronger; if end to end, the internal space will be greater, horses are picketed in the interior, opposite their respective waggons.

Q. What is the sole exception to these modes of parking?

A. When the convoy consists of gunpowder, then the carriages would be massed closely together, and the escort disposed at some distance, so as not to draw the enemy's fire on the convoy.

Q. What should be done, should time not allow of parking to resist an attack?

A. In this case carriages should be closed up to double file, and the horses faced inwards, looking at each other. This will completely shelter the latter from the enemy's cavalry; it will also reduce the length of the convoy to ⅓ or ¼ according as the waggons have four or six horses.

Q. What is the usual mode of attack on a convoy?

A. To attack a convoy is easier than to defend it.

Success is best assured when the enemy is attacked on the march, particularly if moving through difficult ground, or a defile; also when parking after a march, or in starting from its bivouac after a halt. The attack should be a surprise that the convoy should be reached before it has time to close up, or the escort to concentrate. The attack must be very well timed, or an ambush created. The main part of the attacking force should be composed of cavalry, in order to ensure the rapid action necessary to effect a surprise; but as cavalry could not of itself disperse good infantry, a certain number of light guns should be added. These latter materially aid in causing disorder in the convoy. The composition of the attacking force should therefore be ⅔ cavalry, ⅓ infantry, and guns according to circumstances. In an open country the flanks are most vulnerable; in a close country the extremities. If engaged in a defile it may be attacked after a part has entered, when the remainder would be cut off, or after a part has issued, with

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the same result. If the attacking force is superior it may fall on the convoy at the head, rear, and centre, simultaneously, otherwise part would be detached to head the convoy, while the main body sought to beat the escort in detail. If the attacking force be very inferior it can only make attempts against the rear of the convoy, or hang on the line of march, so as to delay and harass it. In all attacks, feints at different points are advisable to keep the escort disseminated. A reserve will usually be provided, especially if the escort is likely to be reinforced. The object of the attack being to destroy or capture the convoy, if the escort is beaten no time should be lost in moving off the waggons for fear of recapture; and if the latter is imminent, then only the most valuable part of the convoy should be taken, and all the spare horses used to take them off. If no part can be removed then the horses at least should be taken and the convoy burnt.

Q. How is a convoy conducted by water?

A. Similarly to that by land. The infantry of the escort in boats, and the cavalry on the banks. If a serious attack is to be met, the whole of the escort would be landed, but if not serious the cavalry should keep it at a distance.

Reconnoitring widely to the front and flank becomes, with a river convoy, the more necessary from the importance of engaging the enemy at some distance from the river side. Connecting files should be established between the farthest patrols and the river side to convey intelligence rapidly. If the enemy's approach be signalled, the convoy should draw towards the opposite bank, while the boats carrying the escort approach the other. If the alarm proves well founded the escort should land keeping the boats at hand for re-embarkation, if necessary, and the convoy be halted. If the enemy be beaten off, the previous order will be resumed. If the escort is beaten the convoy should endeavour to escape, and failing that, it should be sunk rather than surrendered. The escort will fall back to its boats fighting, and regain the convoy.

Q. When should part of the infantry proceed along the banks?

A. This should seldom be resorted to, as it fatigues the infantry and retards the convoy; but it might be advisable sometimes in ascending a stream when the boats are towed by horses and the progress is slow.

Q. How would an attack be organised on a water convoy?

A. By an ambush; the success will almost entirely depend on secrecy. The attack would open with artillery fire on the leading boats, and rifle fire on the boatmen.

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FIRE DISCIPLINE.

Q. What is meant by Fire discipline?

A. It is the faculty, developed in the men by instruction and training, of commencing, ceasing, or diminishing fire, or of concentrating it upon a defined object, in obedience to the deliberate will of the commander.

Q. In infantry combats what is the only sure preparation for success?

A. An efficient fire.

Q. How is this to be regulated?

A. The employment of this fire must be so regulated from the beginning in accordance with the progress of the engagement, that it may gradually increase in power up to the end.

Q. What are the four rules a soldier should specially attend to in action?

A. 1. Not to fire at all unless the order to commence firing has been given by his commander.

2. Never to fire when in motion.

3. To cease firing immediately when ordered by his commander.

4. To fire slow and aim low.

As regards the first rule the order to commence firing does not mean that every man is to fire whether he sees the enemy or not; but merely whenever the latter exposes himself sufficiently.

Q. Should a group or party when firing at an enemy try to cover a large area with their fire?

A. Certainly not; they should concentrate their fire on one point at a time.

Q. What should be the special object of the attention of the commander during firing?

A. He should take especial care that ammunition is not wasted in the early advance; so that when a heavy fire is wanted at a decisive movement, there may be plenty of cartridges left in the fighting line.

Q. What are the rules to be observed respecting *independent slow fire?*

A. This is kept up under the direction of the commander at the longer effective ranges, and until within from 300 to 200 yards of the enemy.

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The less skilful shots will be told to fire at the largest groups or masses while the better shots should be made to pick off officers and advanced marksmen.

The men must adjust their sights, aim carefully, avoid hurry and fire low.

The commander will from time to time indicate to his men what to fire at.

It must be borne in mind that the decisive effect of fire in action is not to be found in its *intensity*, but solely and absolutely in its *accuracy*. Every shot should tell.

Q. When does *rapid independent fire* commence ?

A. When the fighting line has been reinforced and the moment of assault approaches; it is given at short range, only lasts a few minutes at a time, and must be as hot as possible.

Q. Is a precise aim still necessary ?

A. No; the men will only take care to fire straight, low, and rapidly.

Q. How rapidly should they then fire ?

A. From six to nine shots a minute.

Q. When is rapid independent fire most useful in the defence ?

A. Just before the assault; when the enemy's attacking line have been reinforced by the support, and they present a good mark at short range.

Q. How is *volley firing* executed ?

A. By word of command; and by groups, sections or companies according to the strength of the troops; or in large forces even by half-battalions or battalions.

Q. How should the volley be employed in attacking ?

A. To deal a heavy blow at a critical moment.

If the position is thickly crowded with defenders not well covered, volleys may be commenced at 800 yards. The men should be in single rank so that all can kneel or lie down.

Q. How is volley firing employed in defence ?

A. When the enemy is on open ground at short range; also at the final stages when his fighting line has been reinforced by his main body; or as a preliminary to a counter-attack

Q. What is the special characteristic of the smoke of volley firing ?

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A. It disappears quickly; whereas in independent firing it hangs about the troops and prevents their seeing.

Q. Which system causes most loss to the enemy?

A. Independent firing with its unceasing rain of bullets; but the expenditure of cartridges is very much greater; and it is often difficult to make men cease firing when necessary.

Q. What is the usual mode employed?

A. Hitherto it has been independent firing; volley firing being the exception. By a recent order, however, at field days and when manœuvring in close formation, musketry fire will be by volleys only.

Q. What is the advantage of volley firing?

A. That the rapidity of fire and expenditure of ammunition can be more easily regulated by the commander.

Sufficient intervals must be left between the volleys to allow the smoke to clear away.

SUPPLY OF AMMUNITION.

Q. What supply of service small arm ammunition should be at all times in possession of the troops, except when temporarily returned to store on a change of station?

A. 20 rounds of ball cartridge for each rifle and 24 rounds for each revolver pistol.

Q. At whose discretion can the service ammunition in possession of troops be increased?

A. That of the general commanding.

Q. Where and in whose charge is the service ammunition not actually in use to be kept?

A. In the regimental magazine, in charge of the quartermaster.

Q. May the service ammunition be expended in practice and exercise, or the supply for practice and exercise be expended for service purposes?

A. As regards expenditure, the two supplies are to be treated alike, that longest in possession being invariably used up first.

Q. Name the proportions of small arm ammunition allowed for practice and exercise of infantry each year?

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A. Ball ammunition, 160 rounds for each trained soldier. An additional 10 rounds for each man is allowed at all stations where field firing is practised. Blank ammunition, 60 rounds for each soldier (R. and F.), and 40 rounds for each recruit (officer or man).

Q. What proportion of revolver ammunition is allowed for each infantry battalion?

A. 72 rounds are allowed annually. Subject to the approval of the general commanding, commanding officers are permitted, if the state of the store permits of it, to draw a further supply on payment of 36 rounds for each officer for use with his own pistol, and of 72 rounds per pistol on charge for the use of warrant officers and staff sergeants.

Q. What issue of ball ammunition is sanctioned for officers who express a wish to go through the course of individual firing?

A. 60 rounds.

Q. What ammunition may be expended for shooting matches?

A. 10 rounds of the annual supply may be so used. The general commanding may sanction the issue, on payment, of additional ammunition for matches, not exceeding 130 rounds for each competitor per annum.

Q. Name some general rules applicable to the conveyance of ammunition?

A. Ammunition should never be forwarded to any corps without notice, and until it is ascertained that the commanding officer is ready to receive it. When military wagons or carts are used, the loading will be performed by the military, who will be responsible for it, and for the condition and suitability of the transport. Commanding officers of escorts will prohibit smoking, and see that none of the party have lucifer or other matches in possession.

Q. Where it is necessary to hire wagons for the conveyance of ammunition, by whom is the arrangement made?

A. By the Commissariat and Transport Staff.

Q. Of what, as a general rule, does the first supply of ammunition for field service for infantry consist?

A. 480 rounds for each infantry rifle, and a proportion for pistols.

Q. How is the first supply of ammunition for infantry on field service distributed?

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A. For rifles, 70 rounds in pouches; 30 in regimental reserve; 30 in divisional reserve; 30 in army corps reserve; 320 in the depôts in charge of the ordnance store department. For pistols, 24 in pouches; 36 in regimental reserve; 36 in divisional reserve; 200 in the depôts as above.

Q. How are the reserves of infantry ammunition carried on field service?

A. The regimental and divisional reserves are carried in carts; the former with the regiment; the divisional and army corps reserve in charge of Royal Artillery.—The army corps reserve is in waggons. Each cart contains 16 boxes of rifle ammunition, making up 9,600 rounds, and in its under-box 240 rounds of pistol ammunition for staff-sergeants and officers, the latter on payment. The regimental reserve cart accompanies the battalion in charge of the commanding officer, and will be disposed of in the field as ordered by the general commanding.

Q. How are regimental reserves (infantry) of ammunition replenished in the field?

A. By demands on the divisional reserve.

Q. What carriage transport is required for the regimental reserves of infantry?

A. For each battalion of infantry, 3 carts; 6 horses; 3 drivers; 1 non-commissioned officer.

Q. In what case is packsaddle transport to be employed instead of carts for regimental reserves of ammunition?

A. Where the country is unsuitable for wheel transport.

Q. What number of rounds (M.H. ammunition) are there in a box?

A. 600; weighing with box 79 lbs. 8 ozs.

Q. How are the regimental reserves of ammunition disposed of in action?

A. One cart follows the battalion into action as closely as possible; the other two are parked in rear, with those of the other two battalions in the same brigade to await orders.

Q. What ammunition is carried in the field by cavalry and artillery?

A. Twenty rounds S.A.A. for cavalry; 500 rounds per gun for artillery.

Q. How should the fighting line be supplied with ammunition in action?

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A. Each company of the fighting line should have its ammunition served out to it previous to an advance: and the pouches should be kept carefully replenished from the regimental cart by pioneers or bandsmen, who should for this purpose be provided with a double bag worn over the shoulders.

The ammunition of the dead and wounded should be collected as far as possible.

THE EXTENDED ORDER.

Q. Give the caution and command for extending a company.

A. The Company will Extend for Attack, from the Right (or Left), or The Company will Skirmish, Extending—Paces from the Right (Left, Centre, or No.—File); on this caution the Officers return swords and the captain will give Advance from the Right (or Left) 4 Paces Extend; or for skirmishing, From the Right), (Left, Centre, or No.—File)—Paces Extend,

Q. Describe how a company extends.

A. On the word Extend, the company will advance and extend on the march: the captain will be 6 paces in rear of the centre; the guides 3 paces in rear of the centre of the outer sections; their markers in rear of the inner sections. The guides and markers take charge of their sections under the general control of the captain.

Q. What are the special duties of the guides and markers during the extension of their company?

A. To see that the files take their proper intervals and preserve the general alignment; the guides should also see that the outer files lead in a true direction.

Q. What are the positions of the section commanders when a company is in extended order?

A. Such positions in rear of their commands as will best enable them to superintend their men.

Q. What are the special duties of the section commanders when a company in extended order is firing?

A. To take care that the men fire only when an order to the section has been given to do so, and that they adjust their sights and aim at precise objects.

Q. Is the word, or sound Fire, permissive or obligatory in extended order?

A. Permissive; it is subject to the direction of the commander of the fighting line.

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Q. When a company in extended order receives the word or sound Fire, how are the company and section commanders to act in order that the firing may be kept under their complete control?

A. The section, or number of men in each section, who are to fire, will be ordered by the company commander when he considers the enemy is in range; the section leaders will select the men to commence the fire.

Q. What is the rule as to position whilst firing in extended order?

A. The men are to assume such positions as may be most convenient, and may render their fire most effective. The line may be ordered to lie down, or single soldiers may do so for the sake of cover; when firing in this position, both elbows must rest on the ground to support the body and rifle.

Q. On the word or command to fire in extended order At the Halt, how do the rear rank men act?

A. Move up on the left of their front rank men and fire as they may be directed.

Q. Should soldiers, when firing in extended order at the halt, shut down the flap of the back-sight after each round?

A. No; not until ordered to cease firing, or to advance or retire.

Q. How are men, firing in extended order, to act on Cease Fire being sounded?

A. If lying down, or under cover, they will remain steady, otherwise they will form files.

Q. How do the rear rank men act when a company extended is ordered to fire whilst advancing?

A. They move up on the left of their front rank men.

Q. How is firing, when advancing in extended order, executed?

A. The line opens fire, as directed by the section commanders and continues advancing in a general line, taking advantage of cover and halting to fire.

Q. Describe the method of firing when retiring in extended line

A. On the word, or sound, to fire, the company, if moving in files, will form rank entire, by the rear rank inclining to the right and waiting for their front rank men; the men or files selected to commence will halt, front, and fire, the remainder continuing to retire. As soon as the former have fired, they will turn about and join the general line. The next shots selected will have halted and fronted, and as soon as their front is clear, will fire, and thus the

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retreat will continue in one general line, advantage being taken of available positions for making a stand.

Q. Describe the method of covering an advance by the firing of alternate men or files of a named section.

A. Advantage having been taken of any cover by the files running up to it, the advance of the remainder can be covered by their fire—but men must not be allowed to quit the general line of advance to seek cover,—and after delivering their fire they must move on again with the general line.

Q. Name some of the general principles which are to be followed with respect to taking advantage of cover in extended order.

A. Thoroughly trained men may be allowed under the general superintendence of their section commanders to act on their individual judgment in choosing cover, advancing, halting, or retiring. Commanders should judge when a rush of half-companies or sections to cover in their front might be made with advantage. On broken ground men should never halt in rear of cover without taking advantage of it. All must bear in mind that individual movement is subordinate to the general movement of the extended line, a part of which should always be named as the guide for the remainder.

Q. When an extended company firing halts, what is the rule as to cover and the continuance of the firing?

A. The men will take cover if possible, and continue firing as may be directed.

Q. What is the rule as to resuming file formation from rank entire?

A. File formation is to be resumed when cease fire is ordered unless the men are lying down or under cover. On the command Form Files, the rear rank men will cover the front rank men.

Q. How is firing while inclining or moving direct to a flank executed?

A. The files ordered to fire make a momentary halt, turn to the front, and fire.

Q. How should a skirmisher fire from behind a tree or from a window?

A. He should fire from the right of a tree, keeping his body under cover, and from the left of a window, or opening.

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Q. By what body should a company extended as a fighting or skirmishing line be supported?

A. By another company; or a company may be practised in extending one or two sections, the remainder following in support.

Q. In what formation should a support move, and where is the post of its commander?

A. It will move either in column of half-companies, or sections, in fours, in line, or at open files (2 paces interval), as may be ordered. The commander will be in front.

Q. What should be the distance between the company extended and the company in support on a plain?

A. 150 yards when formed for attack; 300 when skirmishing.

Q. How may any part of an extended line be reinforced?

A. When an extended line has become thin through losses in action, or when it is desired to strengthen the fighting line against a counter attack, or with a view to deliver an attack, or to hold a position that has been seized, any part of this front line may be reinforced by throwing forward the support, or any part of it.

This reinforcement will as a rule insert itself as a body into any gaps that may at the time exist in the fighting line, or into the intervals between companies, or it may take its position on either flank of that line.

In either case the troops composing this reinforcement will be kept as much as possible together under their own officers. This will be more easy if the men of the fighting line have, during the advance, closed into the centres of companies as they become thinned by loss.

Men may at times become separated from their own company and be unable to rejoin it; they will, in that case, consider themselves under the command of the nearest officer, and take their place as he may direct; and all officers will take under their command any stray men near them.

Q. When one company reinforces another, what is the rule as to the command?

A. The senior officer commands the combined companies.

Q. In what manner should the support conform to the movements of the extended line?

A. By keeping in rear of the centre of the company in its front.

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Q. Describe the method of retiring an extended line which has not been reinforced by the support.

A. The support will halt and extend in rank entire if the extended rank is firing; each man, when practicable, lying down under cover. The distance from the extended line at which this extension of the support takes place, depends on the nature of the ground and the circumstances; the old extended line will either be halted on reaching the support, or pass through it and be halted at a fresh position in rear, the retirement being continued as may be ordered; the company retiring may be closed to a flank, in which case the extended line will continue retiring by alternate portions on the principle that one company covers the retreat of the other.

Q. Describe the method of retiring an extended line after being reinforced by one or more companies.

A. One of the combined companies will retire to a position in rear (on level ground about 50 yards); it will resume file formation at the discretion of the company leaders, and the other company will then be retired by its commander and continue its retreat as laid down in the case of retiring a line that has not been reinforced.

Q. Should all firing in extended order be from rank entire?

A. Yes, if there is room.

Q. Is the procedure laid down for retiring an extended line applicable to the relief of skirmishers?

A. Yes, if they are retiring: but it must clearly be understood that neither a fighting line, whether attacking or holding a position, nor a skirmishing line engaged, must ever be relieved.

Q. When ammunition fails or the men become so overfatigued that it is necessary to hold a fighting line or skirmishing line, what course is to be followed?

A. The support will be ordered to advance, extending and taking up the alignment of the fighting or skirmishing line, which will then remain halted or retire and close by word of command, and act as support, or rejoin the fighting or skirmishing line as may be ordered.

Q. When an extended line is to be brought in, what command or bugle sound is given, and how is the movement executed?

A. Close; on which the line will retire in files closing on its centre (unless otherwise directed). If ordered to form in

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rear of a formed body, it will form up 6 paces in rear of it, moving into position in fours.

Q. What should be impressed upon the men with reference to sudden attacks by cavalry?

A. That infantry, if kept well in hand, have nothing to fear from cavalry; that a single man, on broken ground, has altogether the advantage on his side, provided he remains calm and collected; and that the smallest square or group is secure as long as the men are cool and fire only at the proper moment by order of their commander.

Q. What rules are laid down for the guidance of an extended line when the presence of small bodies of cavalry, on ground favourable for their action, demands a closer formation than single rank, or when it is attacked by cavalry?

A. The line should resume file formation, and if the cavalry attack it the command Form Groups may be given, when the right and left files of every four will close to each other and act as required. If the line has been reinforced by the support, the two files standing next each other will form groups.

Q. Name some stronger formation for resisting larger bodies of cavalry, and state the disadvantages its adoption entails.

A. Rallying squares may be formed, but officers must bear in mind that in forming large bodies for resistance, they lose, at a critical moment, their power of offence, and become an easier mark for artillery fire.

Q. How should the support act when the extended line is attacked by cavalry?

A. Move up into the best position for aiding it and, if necessary, open fire. Should the cavalry press upon the support, the flanks will gradually fall back, so that it will form an oval two deep round the commander. Or, the support may form company square, on the caution Prepare for Cavalry, by forming four deep, and closing.

Q. Describe how a rallying square is formed.

A. The company being dispersed, the words Form Rallying Square, are given, and at the same time an officer is placed as a rallying point, who holds up his sword and turns towards the supposed enemy. The men run to the officer, form round him without crowding, order arms, fix bayonets (or swords), and turn outwards. Or, a company may form several squares, the command being Form Rallying Squares.

Q. When a rallying square is composed of a large number of men, how may the officer reduce the depth of its faces to four or two deep?

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A. By ordering the faces to take a given number of paces to their front, and the men in the centre to fill up the intervals, at the corners.

Q. How may a rallying square be moved in any direction, and how is it guided in its movement?

A. The Square will Advance (Retire, or Move to the Right or Left) being given, will be repeated by the officer on whom the square is formed, and followed by Inwards—Turn, Quick—March. The square will march by the left of the leading face, if advancing or moving to the right; by the right, if retiring or moving to the left. The instructor's caution, The Square will Halt, is followed by the officer's command, Square—Halt. The men turn outwards.

Q. When the square is to prepare for cavalry, what words are given?

A. On the bugle call Prepare for Cavalry, the executive words, Prepare for Cavalry, will be given by the officer.

Q. How is company re-formed from rallying square?

A. On the caution, Re-form Company, the captain will give Unfix Bayonets (or Swords), and the left marker will mark where the left flank of the company is to rest, turned towards the supposed enemy. Re-form—Company, Quick—March, the men will form on the marker.

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2nd Week.

Hasty Intrenchments. Organization of working parties and carrying of tools; construction of shelter trenches and rifle pits; occupation of these by a portion and attack by remainder of company. ("Field Exercises.")

Elements of defence of posts, explained on the ground where facilities exist, comprising improvised obstacles, the principles of the defence of banks, hedges, ditches, and walls. (Sec. V., paras. 1 to 15, "The Manual of Elementary Field Engineering.")

Marches (Part VII., Secs. 3 to 9, "Field Exercises"). Security and information; the advanced guard, its composition, formation, and conduct on a road, a plain, entering a village, and approaching a defile; flanking parties; course if attacked. (Part VI., Sec. 1, "Field Exercises.")

The rear guard; its formation, object, and conduct in advance and retreat. (Part VI., Sec. 2, "Field Exercises.")

HASTY INTRENCHMENTS.

Q. What are hasty intrenchments?

A. Temporary cover provided at short notice to protect men from the enemy's fire until it is time to advance against him, such as shelter pits, rifle pits, shelter trenches, charger pits, &c

Most ground gives a certain amount of protection from the enemy's fire. Men firing may be concealed and sheltered behind banks, walls, ditches, etc.; while supports and reserves are concealed and sheltered behind undulations, woods, embankments, or cuttings.

The hasty intrenchments by which the natural defensive features of a position will have to be supplemented are, as a rule—

(*a*) Cover for skirmishers, shelter pits, and rifle pits.
(*b*) Cover for shooting line, supports and reserves, shelter trenches, breastworks, and epaulments.
(*c*) Cover for artillery, gun pits and gun epaulments.

Q. What are shelter pits?

A. Figs. 1 and 2, give the plan and section of a shelter pit for one man, which can be made in about ten minutes. In this pit a man fires lying on his stomach, in this position his legs are usually inclined to the left. If, to admit of this, the pit be first made at an angle to the line of fire the legs are exposed, but, when made direct, as in plan, the legs are protected, and, if time be available, it can be improved as shewn by dotted lines to suit the inclined position.

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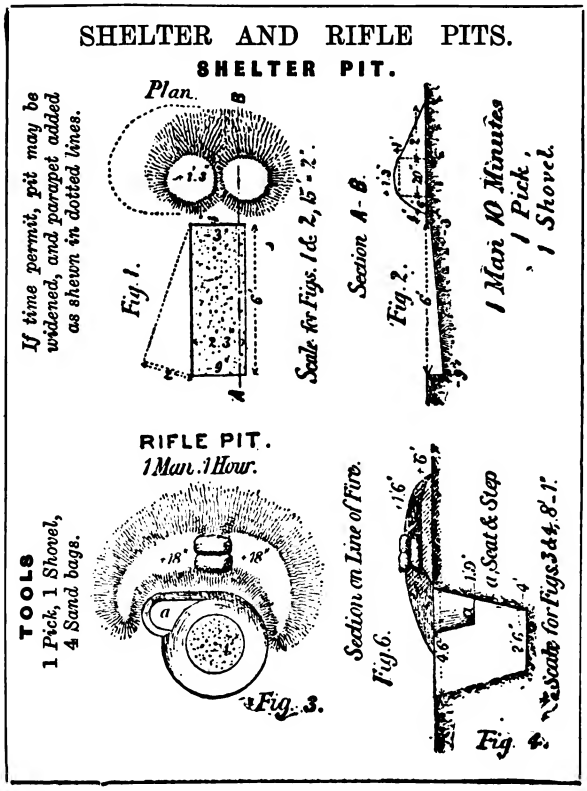
A short length of trench of similar section is suitable for groups of two or more men allowing 2 ft. 6 in. per man.

Q. What are rifle pits?

A. Fig. 3 and 4 show a rifle pit for one man. It is a more convenient form of cover then a shelter pit, and would be used where permanent occupation is necessary. Time of construction 1½ hours

Pits of this kind can be connected by a narrow trench 3 ft. to 4 ft. deep, forming a covered line of communication, which is useful for purposes of patrol and relief.



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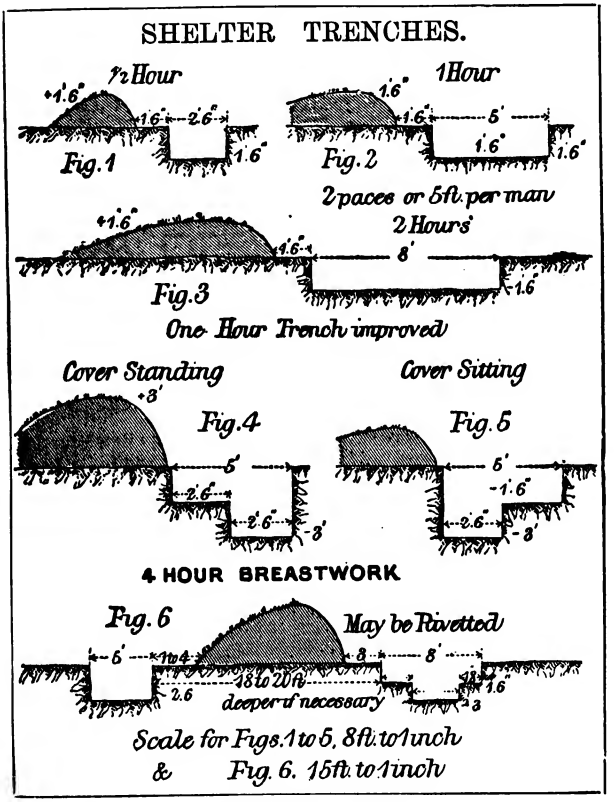
Q. What are shelter trenches?

A. Temporary cover for a body of troops in line, kneeling or lying. The front rank acts as a covering party, and detains the enemy, if possible, until the trench is completed; when they, with the rear rank, man the trench, and open fire. These trenches are made by regular working parties.



Q. How are the men told off into parties?

A. They are placed two paces (5 ft.) apart in single rank.

Q. How much is one man expected to dig in an hour?

A. About one cubic yard (27 cubic feet).

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Q. What tools do the working party carry?

A. Each man requires a pick and shovel; but in order to save time, and to give relief, twice as many men are told off as will be needed to dig, so that each man carries only one tool.

Q. What is the best position for constructing shelter trenches?

A. As a rule, the shelter trench should follow the crest line of the hills, sufficiently near the brow to sweep all the ground in front with fire. All intrenchments should be made as invisible as possible by covering the newly turned earth with grass, heather, &c.

Q. How should cover for the heads of the men occupying shelter trenches be provided?

A. Logs, supported by sods, sandbags, or stones, so as to leave a space for the rifles to fire underneath, give the simplest and best cover for the heads.

Q. What is a charger-pit, and how long does it take to make?

A. A pit to give cover for the horses of mounted officers. Three men are required for each pit and should complete it in two hours. A charger pit is made in any convenient spot, in rear of the shelter trench, concealed as much as possible.

Q. Are shelter trenches sufficient for every case in which it is desirable that artificial cover should be made for troops in the field?

A. No; an inferior force may have to strengthen its position by entrenchments or even field works.

Q. Is it advisable to provide hasty cover for troops in line of battle and prepared to act on the offensive?

A. Yes; but the trenches should not offer any obstacle to the advance of the troops posted in them.

Q. In providing hasty or temporary shelter, what amount of cover is necessary?

A. Such as will protect men in great measure from the effects of shrapnel and rifle bullets, besides screening them from view.

Q. What is the penetration of rifle bullets into newly excavated earth?

A. It does not exceed 12 inches at 220 yards, or 20 inches at 10 yards.

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Q. In making shelter trenches, what width of trench, 5 ft. long by 18 in. deep, may each digger be expected to execute in half an hour, one hour, and two hours respectively? And what degree of shelter would be obtained in each case?

A. In half an hour, a width of 2½ ft., or shelter for one rank kneeling. In one hour, a width of 5 ft., or shelter for two ranks kneeling. In two hours a width of 8 ft. or shelter for two ranks and supernumeraries; see Figs 1, 2, & 3.

Q. How may standing and sitting cover be obtained?

A. By deepening instead of widening, the one-hour trench as shewn in Figs. 4 and 5. Fig. 5 should be used when the surface to be defended slopes so as to be thoroughly seen from a height of 18 inches above ground level.

Fig. 4 is best when additional command is required, the parapet in this case being 3 ft. high instead of only 1½ ft.

Q. How may these trenches be further improved when time allows?

A. When more permanent and solid cover is required than that afforded by a simple trench, two rows of diggers can be used, and a front ditch excavated, as well as a rear trench.

Fig. 6 gives a specimen of a breastwork of this nature, which should take four hours to execute. The rear trench consists of the "two-hour trench, deepened in the centre. The front ditch may be of any shape or size, care being taken in this and similar cases to place it *well to the front* (not less than 18 or 20 ft.), as room is thus left for the subsequent thickening and repair of the breastwork or parapet.

Q. How can cover be provided for guns?

A. Cover for guns can be obtained either by sinking them in a pit or covering them by an epaulment. The former would be used where the top surface of the ground is soft, and no natural cover exists, such a case, for instance, as an open ploughed field: the latter where existing banks can easily be modified into the requisite epaulments, or where the natural surface of the ground is hard and well adapted for working the guns, such as gravel, metalled roads, or even sound turf.

In a pit the same amount of cover is obtained in a shorter time than in an epaulment, but in the former the gun cannot be brought into action until the pit is completed, while in the latter, fire can be opened at any moment, the construction of the epaulment even going on while the gun is in action.

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Q. Describe the formation of working parties and the method of laying out tools.

A. The companies are formed up in quarter-column on one flank of the tools, which are to be laid out in pairs, and in rows corresponding with the number of companies and files in them.

The intervals between the sets of tools to be one pace, and the distances between the rows six paces. The tools should, in the first instance, be issued to the rear ranks, to obviate the possibility of a blank file taking up one.

Q. When tools are carried, what is the most convenient way of carrying the rifle? Give the command for the purpose?

A. Diagonally across the back, slung over left shoulder. The ranks having been opened, and arms brought to "the advance," (or "shoulder" in rifle battalions).

"For shelter trench Exercise Sling Arms" is given; and when it is desired to unsling, Order Arms.

Q. Describe the method of issuing tools when laid out in rows.

A. The command is given, Working Party, Rear Ranks, Left (or Right) Turn. File on Tools. The markers on the flank towards which the men turn will place themselves on the further flank of the row of tools for their companies. Quick March, the rear ranks step off, and each receives from the guide No.—Halt, Front, when each rear rank is in rear of its tools. The guides will see that each man places himself in rear of the proper set, and then give No.—Take up tools, when each man will advance the left foot a short pace, and having taken up a shovel in his right hand, and a pick in his left, without noise, will come to Attention, holding the tools at the trail, iron to the front and vertical. The guides then march the rear ranks into their position in the column, and give Transfer Tools, when the rear rank will transfer the shovels to the front ranks.

Q. How is the issue made when the tools are in heaps?

A. The ranks turn to the left (or right) and receive their tools while filing past their heaps. Front ranks receive shovels, rear ranks picks. After the men have passed the heap they will wheel to the left (or right) about, and on reaching the left (or right) of their company will left (or right) form.

Q. In which hand should each man carry his pick or shovel in marching?

A. In the left.

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Q. In turning in file (or about) and when marching in file, how are tools to be carried in order to prevent noise?

A. In *turning*, the handles should be brought into a vertical position by lowering the iron part of the pick, and raising the iron part of the shovel, resuming the trail when the turn is complete. When *marching in file* the handles should incline outwards in order to enable the files to close up.

Q. On approaching the position fixed on for forming shelter-trenches, what course is to be followed?

A. The ranks told off as covering party will (by command) transfer their tools to the ranks to be employed in digging. The working party will then be extended at such intervals as may be directed. If the party be advancing, the working rank is halted at 12 paces in rear of the proposed trench, the other rank continuing to advance until it is in a good position for covering the working rank. If the party is retiring, the covering rank will be halted and fronted, with a similar object, before it reaches the proposed trench, the working rank continuing to retire until it is 12 paces in rear of it. A guide and two sergeants remain with the working rank of each company, the captain retaining charge of both ranks.

Q. On the completion of shelter-trench exercise, what is invariably to be done?

A. The working ranks will take up their arms, and fire will be opened as may be directed; unless head-cover be provided, the instant a volley is fired, the men must lower their heads behind the parapet, load, and remain under cover until the word present is given; after this the order will be given to conclude with a charge.

Q. State what course is to be followed in the extension of working parties.

A. The men being in single ranks are marched in column to the rear of one flank or centre of the line on which they are to be extended. If the extension is to be to the left, the command will be By Successive Companies, Right Turn, Left Wheel, and when the leading man is one pace in rear of the proposed shelter-trench, Left wheel, Right form in extended order, at two (or more) paces intervals.

Q. After a working party has been extended, how is each man's task allotted and marked?

A. The guide should pace along the line, which at night should be marked by a white tracing tape, and halt at every two paces; when the man whose portion he has paced should, with the left hand, drive his pick into the ground to mark the left of his task, placing his shovel on the ground at

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right angles to the pick, blade to the left. A non-commissioned officer should follow the officer to assist in placing the men.

Q. Should the men of a working party commence work as soon as they are extended?

A. No; they should lie down and await orders.

Q. When orders are given to commence, what is to be done?

A. All set to work to cut and build up the surface sods along the line, leaving the berm of 18 inches. Each man excavates a hole of the required depth, at the left corner of the task. The pick must be used working front and rear, and never across the task. Men can work as close together as 4 feet, by 5 feet is a safer front for a task.

Q. When a working party is armed, how are the arms to be disposed of during the construction of the shelter-trench?

A. The men will, by word of command, turn about and take two paces to their rear and ground arms, or pile, at the option of the officer, and take off their accoutrements.

Q. Describe the method of returning tools in the shelter-trench exercise?

A. The working party on arriving at the place of deposit, will be formed in quarter-column. The rank carrying the tools will receive Front (or Rear) Rank, Right (or Left) Turn the guide moving with it. On Prepare to Deposit Tools, the markers on that flank will move out and indicate the place where the inner flanks of the ranks are to rest, which should be 4 paces clear of the column. Quick—March. When the rank has cleared its marker, the guide will give, *No.—Halt, Front—Dress, Ground—Tools.* When the guide has ascertained that the tools are correct he will give Order—Arms, and then march the rank back into its position in column.

Q. Are tools always to be returned by the rank which originally took them up?

A. It is desirable that they should.

Q. State some of the rules as to filling in trenches?

A. It is recommended that the trenches should not be filled in on the day on which they have been made, nor by the men as a battalion; but that a fatigue party (or defaulters) should be employed.

Q. When filling in trenches, what lengths of trench should each man fill in an hour?

A. 8 paces of trench, 2 feet wide, 4 paces of main trench, 4 feet wide, 2 paces of main trench, 8 feet wide.

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Q. How long should two men take to fill in a charger pit?

A. One hour.

NB.—It is desirable in drilling a company, that a portion should occupy the shelter trenches and should be attacked by the rest.

DEFENCE OF POSTS.

Q. What is, generally speaking, the object to be attained in defending a village, garden or other post?

A. To render it in a rough way as much like a fortification as possible.

Q. How is this to be done?

A. By connecting the houses and other strong points by breastwork; making every use of existing walls, banks, &c., and making the position as difficult as possible for an enemy to enter.

Q. How should the size of the position to be defended and strength of garrison be calculated?

A. Allow one file to every running yard of hedge, wall, &c.; and and if possible one-fourth more as a reserve. In case of houses to be defended, allow two men to each door, window, or loophole and again a reserve of one-fourth.

Q. How should the breastwork be formed?

A. With almost any obstacles that can be readily found to hand; ordinary furniture is very useful; tables, chairs, cupboards, bedsteads, &c. can be piled up so as to make a capital obstacle and give good cover; also carts that are not wanted as such, especially if the wheels on one side be taken off; boxes, casks, trunks, &c., are very handy; sacks, mattresses, bags, and pillow cases filled with earth are particularly suitable for making loopholes and filling up corners. Bedding, unless filled with earth, is not proof against modern rifles.

Q. How should houses be prepared for defence?

A. Remove inhabitants and combustible materials; provide water and heaps of earth in each room. The glass in all the windows should be broken out; doors and ground floor windows to be blocked up and loopholes to be made in them; if there are shutters, they should be made use of. It will generally be found convenient to barricade *inside* if the shutters are inside, and *outside* if the shutters are outside. Thatched roofs must be taken off; wherever it seems ad-

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visable, loopholes may be broken through walls, doors, and shutters, care being taken to make them so high that an enemy outside may not use them to fire in by; clear away cover in front as far as time and means allow, open up communication throughout and prepare means of retreat. The officer in command should make a rough plan of the building and its vicinity. Cut up roads and paths in front and place obstacles there. If it appears likely that a prolonged occupation and resistance will be necessary, more extensive arrangements for the defence will be made, and will entail the provision of machicoulis galleries or other means of flank defence; and of proper water supply and cooking arrangements, latrines, &c. This however is beyond the limits of this work.

Q. When there is a choice what are the points to be looked for in a building about to be put into a state of defence?

A. 1. It should, as a rule, command all that surrounds it.

2. It should be solid, should not have a thatched roof; a flat roof enables the defenders to fire over the parapet wall; it should be of a nature to furnish materials useful for putting it in a state of defence.

3. It should not be too large for the number of its defenders; and should not require too much time for preparations; an ordinary house may be put in a fairly good state of defence in three hours.

4. It should have balconies, bay windows, or projections of some sort flanking the walls and angles.

5. It should be difficult of access on the side exposed to attack, and yet have a safe retreat for the defenders.

Buildings with thick walls and of hard stone are dangerous to troops in front of them, owing to their liability to wound men by splinters when struck by shells.

Buildings with thin brick walls, up to 18 ins., are penetrated by shells which burst inside. Hence the rule never place troops beside or in front of buildings with thick walls, nor inside those with thin walls, while under artillery fire.

As a rough guide to the requirements under the 3rd head, allow two men to each door or window, and one to each loophole; with, if possible, a reserve of $\frac{1}{4}$ of the whole.

Q. How far apart should the loopholes be?

A. Not less than 3 ft. apart.

Q. What special precautions should be taken against surprise?

A. A few scouts should be sent out and made to keep a sharp look out against any approach of either bodies of troops or

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isolated individuals who might lurk about and try to lodge explosives against the walls or to set fire to the house.

Q. What are the various modes of attacking houses?

A. They may be attacked either, by day, or by night, or set on fire.

Q. How would a house be attacked by day?

A. First of all the skirmishers advance maintaining a brisk fire, principally at the loopholes, keeping well under cover; these are followed by the storming party who advance rapidly with bags of powder, gun-cotton, sledge hammers, axes, crowbars, ladders, &c., to burst open doors and windows, and force an entrance.

The house should always be attacked from several points simultaneously; the corners are the best points of attack, and the advances should of course be made over ground least exposed to fire. The entrance would probably be attempted at a door or window, or by breaking the wall with gun-cotton.

Q. What conditions are generally desirable in a village to be defended?

A. The village should be either in open country or on an eminence; its houses strongly built, of uninflammable material, and grouped together in a compact form, with the usual walls, fences and hedges.

Q. What are the general principles to be kept in view in fortifying all posts?

A. 1. To obtain a defensive line or enclosure of a length suited to the number of defenders, which shall give good fire to the front and flanks, and shall itself be flanked.

2. To provide easy communication along the inside of this line, and towards the interior or rear of the post.

3. To remove cover advantageous to the assailants as far to the front as practicable.

4. To leave (or provide) obstacles to the movements of the assailants: thus a wall or hedge *both* sides of which can be seen from the post should be left, as it will not give cover to the enemy and will obstruct his movements.

5. To provide interior barricades to allow of a slow and gradual retreat should the outer line be forced.

It may be observed that a village in one long scattered street is not good for defence, but it gives great facility for blocking a road.

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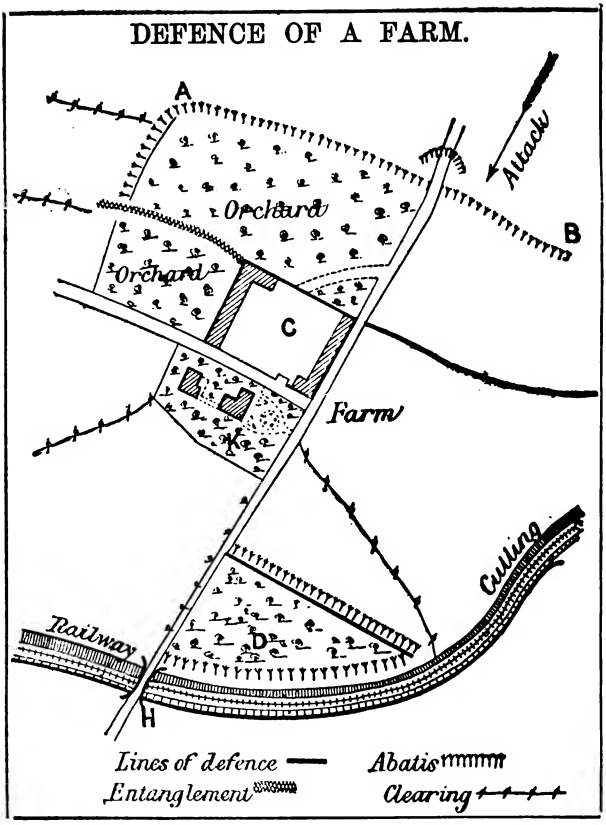

Farms and villages will generally occur in modern battle-fields, and owing to their usual position at the junction of roads, or on streams, frequently become important points in a position.

Their general treatment must be an enlargement of that already laid down for houses. The buildings themselves should never be held in the first instance by the shooting line, but should serve as cover for supports drawn up in their rear, the shooting line being advanced under cover of existing features.

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The annexed sketch shows these principles applied to a farm C, lying in advance of the bridge H, which is a point that requires to be strongly held.

The proximity of the farm, which we may suppose to be strongly built, necessitates its being held as an advanced post.

The shooting line A B is established along the fences bounding the neighbouring fields and orchards. The farm buildings are loopholed, and can be held, should the shooting line be forced; while the fire from the house K would render the occupation of the farmyard by the enemy difficult. Farther to the rear the railway cutting and wood, D, are strongly prepared for a final position, from which guns would play upon the enemy during his attack, and shell him out of the farm buildings, should they fall into his possession.

The rear of an advanced post, whether farm or village, which is within range of the main line, should be left weak and open, to facilitate re-capture.

Q. What is the most important thing to be attended to in defending walls?

A. To render them useless to the enemy should he manage to get up to them.

Q. How is this to be done?

A. By placing obstacles in front; or by sinking a ditch outside so that he may not be able to fire over the top of it, or through the loopholes.

Q. What is the least height that will prevent his doing this?

A. Six feet.

Q. What height of wall can, subject to above, be used as it stands?

A. One between 4 ft. and 5 ft. high. Head cover should be provided by laying trunks of trees supported by stones on the top, or loopholes may be made by placing large stones on sods on the top.

Q. How is cover to be obtained for supports or for men not firing from the wall?

A. By digging a trench in rear.

Q. How is protection against artillery fire to be obtained?

A. By heaping up against the wall the earth obtained from a ditch in front; in this case the ditch should not be too close to the wall.

Q. If a wall is less than 4 ft. high, how can it be utilised?

A. By sinking a small trench inside to get additional cover.

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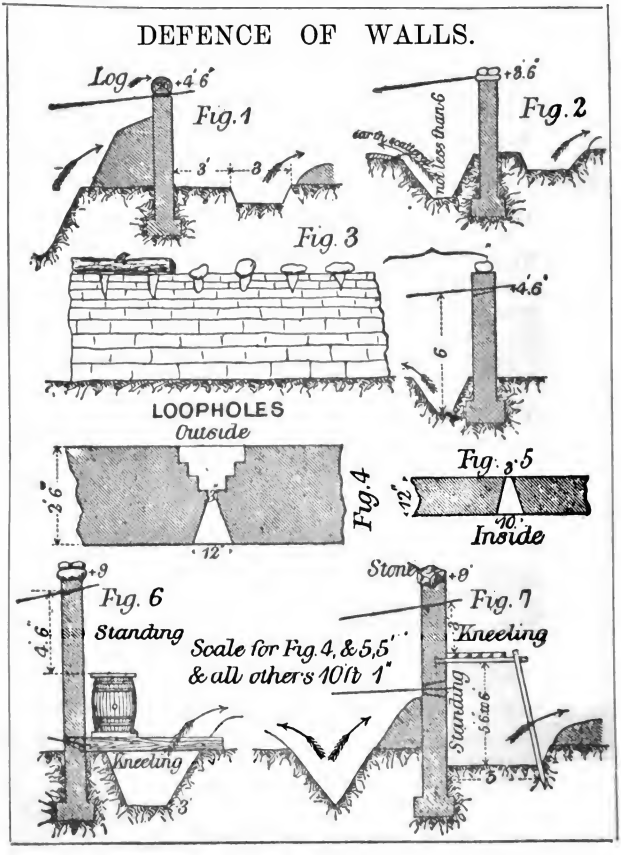
Q. **If a wall is more than 5 ft. high, how is it to be utilized?**

A. Between 5 ft. and 6 ft. it can be notched. Sandbags, sods, &c. can be stuffed into the notches. Above 6 ft. in height, a platform or *banquette* must be raised inside so that men may fire either over the top or through the notches; or a wall may be loopholed.

The accompanying sketches shew the mode of defending walls.

Figs. 6 and 7 shew how to prepare walls for a double tier of fire.



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Q What size should the loopholes be? And how far apart should they be?

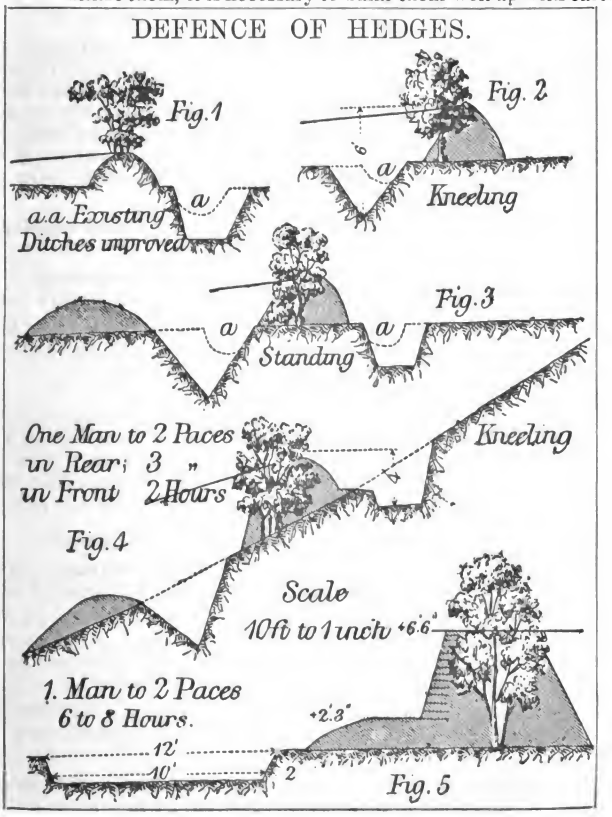
A. They should not shew more than 3 ins. wide on the outside, but may be splayed to about 10 ins. in the inside of a 14 in. wall. Loopholing should be begun from the inside to prevent a tendency to splaying outwards.

Q. How would loopholing be done in the field?

A. With crowbars, chisels and hammers, or even with pickaxes.

Q. Of what use are hedges in defence?

A. Hedges, of course, conceal men from view, but are no protection against rifle fire as they stand; in order to utilize them, it is necessary to bank them well up with earth.



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Q. How should they be treated?

A. They can be treated as follows:—

A hedge with a ditch on defender's side can be used as it stands, the ditch being widened and improved if necessary, as in Fig. 1.

Hedge with ditch on enemy's side.—Deepen the ditch, and and if possible throw earth to defenders' side to give cover. If not possible, scatter it about and dig trench in rear. See Fig. 2.

Hedge with ditches on both side.—Deepen ditch on enemy's side; utilize earth to obtain cover. See Fig. 3.

Hedge on sloping round.—Gain cover by a small trench in rear, and scrape away the ground in front, as in Fig. 4. Weak places in hedges should be made up with boughs, stakes, wire, &c., as a strong hedge, in addition to being a screen, forms a very efficient obstacle. When high and strong hedges occur, and time is available, they may be treated as in fig. 5. especially if the additional command enables the ground to be better seen into.

A hedge parapet with ditch in front, and men working 4 ft. apart may be made in 4 hours.

Hedges parallel to the front must be removed. Those perpendicular to the line may generally be left standing.

Hedges can be cut down by men at 2 paces interval in from 6 to 18 inches. If very bushy a pole and ropes can be used to expose their lower branches to the axe.

Q. How may walls be easily breached?

A. Walls can be knocked down by a party of men using a trunk of a tree or a railway iron as a battering ram. Low buildings may be similarly treated. If high, they must be blown down and the ruins levelled so as not to give cover.

Q. What is the best way of dealing with embankments?

A. Embankments, according to whether they be narrow or broad, can be treated as shown in figs. 1 and 2 of annexed sketch.

Either side of a cutting can be defended according to circumstances. Fig. 3 shows a case of frequent occurrence, when the fall of the ground admits of both sides of a cutting being occupied, and double tier of fire thus obtained.

Fig. 4 shows a method of defending a road, the fence hedge on one side being converted into an obstacle, and on the other used as cover.

Banks form an excellent natural parapet; and, as a rule, but little labour need be expended on them.

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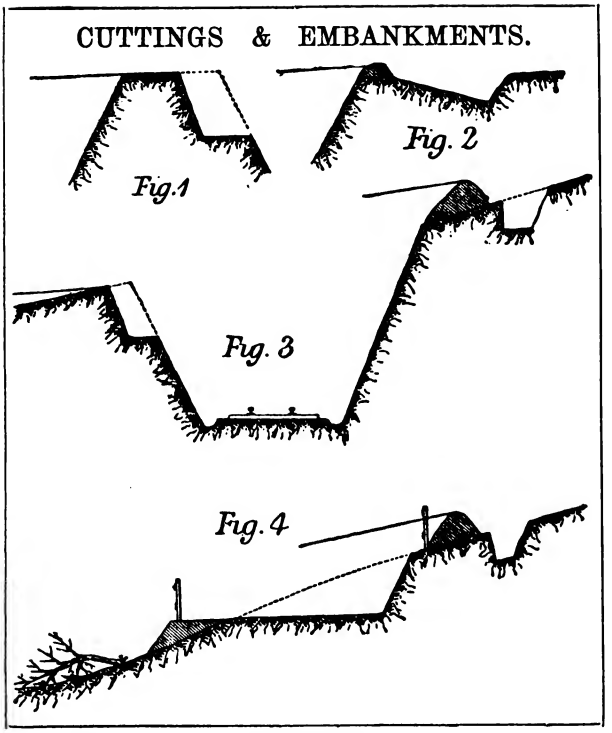

MARCHES.

Q. In what order may troops march?

A. In columns of companies, half-companies, or sections, in quarter columns formed in mass or line; or in fours, according to circumstances and the nature of the country.

Q. What relaxation is permitted to men when marching at ease?

A. The ranks may be opened and the files loosened, the men may talk, smoke, and carry ther rifles as they please but each rank, section, or company, must be kept distinct, and every man remain in his place.

Q. When troops are marching on a road do they observe the rule of the road for driving?

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A. Yes. The directing flank will be that next the centre of the road.

Q. What regulates the width of front of a column on the line of march?

A. It should be always kept as broad as possible.

Q. If a stream, ditch, bank or other obstacle is to be crossed should the front be diminished?

A. Certainly not: on the contrary the files of each section should gradually open out before coming to the obstacle, and the front should even be increased to half-companies or companies.

Q. What is the loss of time entailed by defiling on the line of march?

A. At least ten minutes per battalion, or half an hour for a brigade of three battalions.

Q. Under what circumstances may a man quit the ranks on the line of march? And whose permission must he obtain?

A. A man may only quit the ranks on account of illness, or for some other absolutely necessary purpose; he must obtain permission from the captain of his company, and if he is likely to be long away he should be given a ticket signed by the captain.

Q. May not a man fall out to get water.

A. Certainly not; when water is required the whole column will halt.

Q. What is a man to do with his pack and arms when he falls out?

A. If he falls out for illness he will take them with him, otherwise he will leave them to be carried by the section he belongs to till he returns.

Q. If distance is lost during a march, should the men step out or double to make it up?

A. No; unless they are ordered to do so, they should not go beyond the regular step.

Q. When distance is lost between companies or sections what should be done?

A. The head of each battalion or company will be ordered to step short.

Q. How is the head of column to be informed that a company is losing distance?

A. The commanding officer of the company that is lagging will call out loud that it cannot keep up; this will be repeated forward by officers or sergeants until it reaches the commanding officer of the column, who will give the necessary orders for shortening the pace.

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In like manner if the head of a battalion cannot keep up with the preceding battalion, the commanding officer will forward notice to the head of the column.

Q. What is the length of a march?

A. Usually 12 to 15 miles a day, with halt every 4 or 6 days, but for a large force and great distances the average will not exceed about 10½ miles a day; 15 miles would take 8 hours, viz.: 6 marching, 1 halt, 1 for tail of column. There should be a halt of from 5 to 10 minutes every hour; and for marches of 12 miles, a half-way halt for half an hour.

Anything over 20 miles a day is a forced march. Halting in villages should be avoided; halts should never be made in a defile when the enemy is near.

Q. What is recommended in the soldier's pocket book as a precaution against sore feet?

A. The feet should be bathed at night in tepid water having a few lumps of alum dissolved in it; if there are blisters, they should be pricked with a needle or sharp knife, but the skin must not be torn off. Previous to beginning the next day's march, the tender places should have soft soap, or other grease applied to them. Spirits and water applied to the feet is the best preventive against blisters.

Soaping the stockings for the first few days march is always a wise precaution.

Q. What is the amount of opening out on the line of march owing to lagging?

A. With good officers and troops it should not exceed one-sixth the length of the column itself; with bad officers and troops it will reach one-half; and in extreme cases the length of the column itself will be doubled.

Q. What is the position for the baggage in route marching?

A. In the rear.

Q. What is the rule in choosing roads for troops to march along?

A. Give the softest to cavalry; the best to artillery; and the shortest to infantry.

Q. What is the rule for feeding on the march?

A. Always breakfast before starting; carry something for midday halt; cook and dine after arrival in camp.

Q. What is the usual time allowed for halting?

A. Five minutes after each hour's march, at a given time—longer according to circumstances.

Q. What are the rules about defiling?

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A. Whenever it is necessary it must be executed with order and precision; the proper word of command being preceded by the word *Attention*.

Q. When a battalion or company comes to a defile, stream or bad place in the road, how is it to be crossed.

A. The men must not deviate from the direct course, even though convenient for them to defile individually; the officers must be on the alert and keep their men from doing so; majors and captains will go to the head of their commands to see that orders are obeyed, and remain till the whole have passed.

Q. What rules are to be observed by infantry in passing over pontoon and other temporary bridges?

A. When large bodies of troops have to pass a river, and circumstances permit, three bridges will be made, one for infantry, one for cavalry, and a third for artillery and wagons which accompany the force. Columns of infantry, artillery, wagons, and cavalry must not be mixed together in passing a bridge.

In passing over a pontoon, or other temporary bridge, infantry must break step, and all music cease; and files or sections must not be closed up.

ADVANCED GUARDS.

Q. What is the object of advanced guards?

A. To cover and conceal the movements and formation of the main body, to feel the way through a country; to gain intelligence of the enemy, and give timely notice to the main body of his approach.

Q. What is the usual formation of an advanced guard of a battalion on the line of march on a road?

A. It will be composed of one or more companies, and if possible a signalling party should accompany it.

If it be of one company only it will be divided as follows:—

One half-company will form a support under the captain 300 yards in front of the column, the other half-company, under its guide, will move about 200 yards in front of it, and will detach two files and a N. C. O. 100 yards to the front, and the same to the right and left. The support will send on a connecting file about 100 yards, and drop a connecting file the same distance in rear. (*See* diagram.)

In a large army the advance guard would be fully one-sixth of the whole force.

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ADVANCED GUARD ON A ROAD.

Point (N.C.O. and 4 men).

Left Flankers (N.C.O. and 4 men).

100 yards.

Right Flankers (N.C.O. and 4 men).

Remainder of Half-Company.

200 yards.

Half-Company.

300 yards.

Remainder of Battalion.

Connecting files to be placed between the various portions.

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If the company be weak one file only will be sent in front and one on each flank.

When an advanced guard consists of more than one company the companies will be equally divided as above.

Q. What will the detached files do who are sent out in front and on the flanks?

A. Examine all houses, enclosures, &c., within their reach.

Q. Supposing they should see some of these out of their reach what is to be done?

A. Patrols (consisting of a subaltern's party, a sergeant and 12 or a corporal and 6.) will be sent out from the advanced party to examine them.

Q. What is the advanced guard to do if they perceive an enemy?

A. The leading files of the advanced guard must give immediate notice of the presence of the enemy by signals *vide* Para. II., page 92, "Field Exercises." (The signal party, if there is one would send back information by the army and navy signal code).

The officer in command must also rely on his own intelligence how to act.

Q. What will the advanced guard do on approaching a village?

A. Halt at a distance; and send strong flanking parties round the outskirts to threaten the rear.

A small portion of the advanced party may then move on in single files with a considerable interval between them followed by the rest; if all is clear the support may follow.

Q. What should be the conduct of the advanced guard on approaching a defile or hollow-way?

A. It must never enter it till both sides have been occupied by flanking parties. When this has been done, the advanced section on the road will send on a single file and then others in succession each keeping the file in front in sight; meanwhile the flanking parties on the right and left will move on keeping a little ahead till the defile is passed; when they will all get gradually back into their places.

Q. What should the advanced guard do with regard to any objects that might hide an enemy?

A. Turn their flanks and threaten their rear before approaching their front. Thus all woods, ravines, morasses, &c., must be carefully examined.

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Q. What will be the course of action on coming to a hill?

A. As in the case of the defile; the flank files will first move round the base; a file will then creep cautiously up to the top, "see without being seen" and signal to the rest.

Q. What must the advanced files do if they see a tower, height, or steeple on their way?

A. Go up and look carefully over the country without letting themselves be seen.

Q. What should the advanced guard do in case of attack?

A. The advanced files would be the first to feel it; they will at once fall back on the advanced party. The commanding officer will then use his discretion as to ordering the whole party back or the supports forward; but the advanced guard is to be careful to avoid either exposing itself unnecessarily or committing itself to action.

Q. If, after falling back on the supports, the advanced guard succeed in dislodging the enemy, can they continue their march?

A. They should re-form at once and await further orders.

Q. What should the advanced guard carry besides their arms?

A. Axes and intrenching tools.

Q. What is the formation for an advanced guard on a plain?

A. Simply as a line of skirmishers with a support; and, if far from the main body, with a reserve.

Q. How will they form in this order?

A. First the leading files will halt and lie down; the flanking files will move up and lie down in line with them at the usual interval of 100 yards—the remainder of the advanced party as they come up will extend from the centre.

The support will follow the skirmishers.

Q. How will they re-form when necessary?

A. By the leading files moving on and the rest halting till they have gained their distance and then following; the advance party closing on its centre; advanced guards pay no compliments.

FLANK GUARDS.

Q. What are flank guards?

A. They are detached parties patrolling on the flanks of the column on the line of march to secure it from attack and also to reconnoitre.

Q. Where are these parties taken from?

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A. In the case of small forces they are furnished from the reserve of the advanced-guard. With large forces they would be separate parties, detached under distinct commanders from the main body.

Q. What is their usual strength as laid down in the Field Exercises and how do they move?

A. One or more companies with supports, and if necessary, a reserve will be extended for this purpose moving parallel to the direction of the column whether it advances or retires, the supports and reserves being in fours; the leading men of the extended line should communicate with the flank of the advance guard

When the column halts, the extended line, supports and reserve, will halt and front.

Q. Suppose No. 3 company of a battalion in quarter column at the halt is directed to form a right flanking party, what will its commander do?

A. He will give the word Fours Right, Quick March; when clear of the column Front Form Half Companies.—The left half-company will halt and form a support; and the right half-company will move on and extend the necessary number of paces to enable them to communicate with the head of the advanced guard; and in advancing both the extended men and supports will move forward parallel to the column; flank guards pay no compliments.

REAR GUARDS.

Q. What is the object of Rear Guards?

A. They are simply advanced guards reversed; they guard against a sudden attack in rear, and prevent the enemy getting round and gaining the flanks—they also prevent straggling. They should be kept closer to the main body than the advanced guards

Q. How is the rear guard formed in marching off?

A. By the various parties marching off in succession as the column gains the proper distances from them. A connecting file should be dropped from the rear company of the column.

Q. How should preparations be made for retreat?

A. All preparations for retreat, before the enemy should be made in the rear. A line before falling back will extend its skirmishers behind it with supports and reserves if necessary; these become, the rear guard.

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Q. What should rule the strength and composition of a rear guard?

A. These must depend on the force and vicinity of the enemy, and the nature of the country. In the case of a large body of troops it should be about one-sixth of the whole force.

Q. What should the rear guard be specially provided with?

A. Axes and tools.

Q. For what purpose?

A. To block up defiles and bridges, break up the road, and stop a pursuing enemy in every possible way.

(N.B.—These works, however, are on no account to be carried out if friends are coming up behind.)

Q. Will the rear guard be kept informed of what is met with in front?

A. Yes; especially in a retreating column. An officer will be sent back to tell them of any obstacles in the way, or of any bridge or defile to be passed so that they may be prepared to hold the enemy in check during the delay that must ensue.

Q. What should the flanking parties be doing while the rear guard is disputing any point with the enemy?

A. They must be particularly on the alert, lest the enemy should try to turn the flanks.

Q. Where is caution specially required?

A. Where this occurs at a bridge, and the enemy might make use of a ford; rear guards pay no compliments.

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3rd Week.

Reconnoitring, its object; ordinary patrols, by day and night, in close and open country; reconnoitring a defile, wood, village, and river; flanking patrols; surprises and ambuscades. (Chap. VI., "The Elements of Modern Tactics.")

Outposts, general principles; division of company; advanced line of sentries, their posting, orders, visiting, and relief; detached posts; picquets, their object, position, strength, and telling off; patrols; supports; protection of flanks and connection between several units; procedure on attack; preparation of picquet for defence; withdrawal and retreat. (Dispositions at night, when understood, to be practised after dark.) (Part VI., Sec. 3, "Field Exercises."

RECONNOITRING.

Q. What is the object of reconnoitring?

A. To obtain full and accurate information of the enemy's position, strength and movements; or of the nature and resources of the country.

Q. What arm of the service is usually employed for this purpose?

A. Cavalry; but if none are available, or if the country is mountainous, thickly wooded, or in other ways unsuited to them, infantry would be employed.

Q. Under what heads may a reconnaissance of the enemy be made?

A. (*a*) Reconnaissance in force.

(*b*) Special reconnaissance.

(*c*) Ordinary reconnaissances made by patrols or even by single individuals.

Q. What is a reconnaissance in force?

A. An openly offensive movement on a large scale made by a general officer and comprising all arms of the service; in fact it occasionally leads to a general action.

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Q. What is a special reconnaissance and what is its object?

A. It is made with some specific object such as to reconnoitre a position, or to attack a portion of the enemy's line in order to force him to show his intentions.

It is usual to send a fairly strong party on this duty—but no stronger than is necessary to carry it out efficiently; and when they have done that, they should at once return; they should carefully avoid engaging any portion of the enemy's forces.

Or a detached force of cavalry may be sent in advance of the main body on what are called screening duties; their object being to form a complete screen in front of the army, at the same time keeping touch with the enemy, and gaining early, accurate, and full information concerning him.

Q. What is an ordinary reconnaissance?

A. It is one made by an officer accompanied by a patrol of cavalry; or, as already stated, under some circumstances of infantry: or even by an officer alone.

The object is to see and learn as much as possible without being seen; and to bring back as full and clear a report of his position, numbers, condition, movements, &c., as possible.

Q. What should be the strength of the cavalry patrol?

A. Usually from 5 to 20 troopers accompanied by a guide.

Q. How are patrols constituted for reconnoitring parties, and what are their objects?

A. They may be of infantry or cavalry; they may either be ordinary or what may be called *stealthy* patrols.

Q. What would be the constitution of an ordinary infantry patrol?

A. It would be composed of not less than three picked men, ready of resource and able to march by the points of the compass; the commander should be able to write a clear and correct report.

Q. How should the men or patrol move?

(*a*) On a narrow road or path.

(*b*) On a wide road or through fields.

(*c*) In open country when flanks are dangerous.

A. (*a*) One behind the other in single file; the commander in the centre, about 50 yards from the leader, and the third man about 30 yards behind the commander.

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(*b*) One man would go ahead as point of the patrol, the others following abreast, but a little distance apart, 50 yards in rear. As the ground opens out the two latter, one of them being the commander, would be a little further apart—say 30 yards.

(*c*) Much the same order as the last, but if, say the right flank were dangerous, the second man would move more in that direction, so that one man would lead as before; the commander would be 50 yards in rear of him, and the second man about 100 yards to the right of and rather in advance of the latter.

If both flanks are dangerous, the two men of the patrol may march abreast of each other, 100 yards apart, followed by the commander 50 yards to the rear.

Q. How would a patrol of more than three men march?

A. Four would march in a similar manner; the leader or point 50 yards in advance of the others, who would either remain with the commander or be detached to each flank according to the nature of the country.

In the case of six men, two might lead; the commander might be 100 yards in rear, with a man 50 or 100 yards on each flank and another about 50 yards in rear of him; or he might send only one man as leader and keep one with him.

Similarly with any number of men according to circumstances.

Q. What is the object of these formations?

A. These formations, which, however, are only intended as a guide and cannot always be rigidly adhered to, enable the men, according as the ground permits, to see, mutually support, and assist one another, without bringing them so close together that they could all be cut off or taken at once in the event of a surprise.

Q. What general rules should guide a *stealthy* patrol?

A. They should first be led to high ground and have a good look all round, noting the landmarks; they must not talk, smoke, let their arms rattle nor make a noise; they must frequently halt to observe their direction both in advance and retreat. They must find out all they can about the enemy and the country, avoid fighting unless it be necessary to force an opposing patrol to shew its strength; and above all, take care that whatever happens some, at all events, of their party may get back to give the information they have gained.

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Q. How should they make certain of being able to find their way back in a close country where a number of paths intersect one another ?

A. They must mark the way by breaking branches, scoring the bark of trees, fastening straw to the trees, fences, &c., or by piling up stones.

Q. What will be their line of conduct by day? And what by night ?

A. By day they will steal along hedges and walls, and move if possible by hollow roads, ravines or water-courses.

They will disappear in woods and work through to the far borders on the enemy's side, whence, concealed from view, they may observe all that passes. They should avoid stopping to rest; but, if it be absolutely necessary, they must choose a place distant from dwellings and affording an easy retreat. By day it should be on high ground, but well under cover, so that the patrol can keep a good look-out and yet be unperceived by the enemy's scouts. By night it should rather be on low ground so as to bring advancing foes into view against the sky-line, while they themselves remain in the shade.

Q. Should the patrol enter buildings or their surroundings as a body for any object ?

A. Never. Nor should the men halt near buildings longer than to make necessary enquiries.

Q. Should two friendly patrols meet, what should they do ?

A. They must recognise one another without noise, interchange news and move on.

Q. What should stealthy patrols do on nearing the enemy ?

A. Redouble their precautions; one of them should now and then place his ear against the ground and listen, and if suspicious sounds be heard the men must hide.

Q. Should they see the enemy on the march, what should they do ?

A. Hide, ascertain their strength as far as possible, and send one man to the rear to report the news and return as soon as possible.

Q. When a patrol suddenly comes across a sentry or party of the enemy during the night and is challenged, what should be their action ?

A. They should halt and remain motionless without replying, in hopes of the enemy thinking himself mistaken in the darkness. If seen, however, they should try to make good their

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retreat, or they might try to seize and carry off the sentry, especially if one of the party can speak the enemy's language and get near him.

Q. If they unexpectedly meet an enemy in force, what should they do?

A. If they are unable to retire in time to give warning of his presence, signal must be made by firing, the patrol falling back.

Q. Should a patrol always go back by the way they came?

A. No. Where they know the country and have not to retreat before the enemy they should return by a different route.

Q. How far out should *stealthy* infantry patrols go?

A. Not more than half a mile.

Q. What is the duty of a patrol on coming to a bridge?

A. Ascertain that it has not been tampered with and double across.

Q. How should a house, farm, &c. be examined?

A. It should first be carefully reconnoitred from a distance; if all seems well, the commander and one man go up to it, a third man remaining hidden about 50 yards off, but keeping in sight of the door. The commander gets some one to come out and questions him; should all appear safe, two of the party search the house and grounds thoroughly, always leaving some of the party outside.

Should the searchers not reappear or answer when called upon, a signal shot will be fired and a report sent to the rear—one man, if the party be strong enough, remaining hidden to watch what goes on.

Q. How should a defile be reconnoitred?

A. If the sides bordering the defile can be examined without much loss of time, they should be reconnoitred by flankers before the leading man enters; but if the time or the nature of the ground do not admit of this, the patrol must go through without it.

First, one man leads off at the double, keeping a sharp look-out all round, and ready to give a signal by firing if necessary; then another follows in the same way.

The third man remains at the entrance as long as he can see the others and then follows.

If the defile is too long to keep up the double the pace must be moderated.

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With a sufficient number of men, a patrol may fairly reconnoitre a defile in this manner even if the flanks are inaccessible, and rapidly transmit back a signal of safety or danger through its entire length.

Q. What should be the mode of procedure in searching small woods or groves?

A. The leading man goes along the outside edge of the wood, followed a little in rear by the commander who works along the border just inside it, so as to see well into the wood without losing sight of the leading man outside.—The third man follows outside and well in rear.

If the preliminary examination of the border reveals no sign of occupation, the two in front cautiously enter the wood, go through it, and look out on the opposite side, keeping well hidden.

The third man follows them up round the outside edge and finally joins the others when they emerge on the farther side.

Q. How should large woods be searched?

A. In this case, if not intersected by roads, a small patrol of three or four men can only make an imperfect examination and explore the borders acting as in the case of small woods.

If there be a road through the wood, one man would reconnoitre it up to the first turn, while the others examine the borders of the wood on each side of the entrance. If all seems well, the patrol would advance, one man leading on one side of the road, looking out well to the front and to the wood on his flank, the next man following at a little distance on the other side, keeping an eye on the leading man, and also looking to the wood on his side.

The third man follows, keeping the others just in sight.

Having gone through the wood, they examine the farther border; and, if time admits, would work right round the wood. Should there be other roads, they can also be patrolled in the same way.

A stronger patrol and a more thorough reconnaissance is however desirable in the case of large woods.

Q. What are the two general conditions, as regard the situations of woods, that present themselves to the patrol?

A. (1) The wood is on one side of the main route.

(2) The main route passes through the wood.

Q. How should the first case be dealt with?

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A. The patrol, on approaching the wood, should advance upon and enter it in extended order, the flanking group, of two or three men, working up the outside edge of the wood nearest to the main road, and preserving the touch with the extended party inside.

The extended patrol pushes through the wood, the men keeping within sight or easy hearing of one another. If the wood is passable right through, they emerge on the opposite side; but if it becomes anywhere too thick to go on, the patrol must work out to the side on which its flanking party was left.

Should there be any chance of straying in so doing, the patrol must retire by the way it came, and, joining its outside group, proceed to examine the edges or borders of the wood. A party of the patrol may in such case be sent round the other flank of the wood, or to search any specially suspicious spot, but it may be assumed that those portions of the wood too thick for the patrol to penetrate even in loose order, are not likely to be occupied by the enemy.

Q. In the second case, that of the main road passing through the wood, what should the patrol do?

A. They must advance along it with great precaution, but a strong patrol is necessary for this.

The leading group or point of three men first examine the edges at either side of the entrance, and flankers would go round each edge to meet on the farther side.

The "point" would then go up the main road as already described for a small patrol. An advanced party of the patrol follow the "point" extended across the road and on each side of it, but the front must in no case exceed 100 yards.

A support follows in file on each side of the road.

The remainder of the patrol waits at the entrance to the wood, sending on connecting files to keep up communication with the advanced party and its support.

The extended order of the advanced party may be continued right through the wood, should the passage be easy; but, if very close, the time must be contracted and "flankers" sent out on either side.

All lateral roads would be examined by the latter up to or beyond the first turn before the advanced party passes it.

The point signals back "no enemy in sight" on debouching at the farthest side, and the main body of the patrol then enters the wood.

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When the whole of the patrol has passed through and the flankers have rejoined, a further reconnaissance of the wood on each side of the road may' if time admits, be then effected.

Q. How should villages be reconnoitred?

A. A large village should never be entered by small detached patrol; it must be merely reconnoitred from favourable ground outside, and it will probably be seen whether it is occupied by the enemy or not.

In the case of a small village, the best plan is to begin by seizing an inhabitant of an outside house or farm and questioning him. A child or one or two children or youths are the best; they are more likely to disclose or fail to conceal the truth than grown-up persons; they should be questioned separately.

Should all appear safe, the patrol will enter the hamlet; the two leading men march one behind the other, the commander second, on one side of the road looking up at the houses opposite.

The third man remains at the entrance, unless the road twists, when he follows to keep the others in sight.

Having gone right through the village, two of the party endeavour to obtain information, if necessary re-entering for that purpose, one or more being always outside. These last should, if possible, be posted in some good position for observing what passes, so as to be able to get off if the other men are seized by an enemy concealed in the houses.

Q. What are the principal points to be noted in making reconnaissance of a river or canal.

A. (*a*) Its value as an obstacle to the enemy's progress, remembering that it is only formidable as such when its extent is limited and the volume of water considerable.

(*b*) Whether bridged or not, giving the number, length, width and height above water of the bridges; the material of which they are constructed, *i.e.* timber, stone, brick, iron, iron wire; whether supported by piers in channel or on banks, or by suspension, &c., and what facilities exist for defending or destroying them; also whether they are available for the passage of cavalry and artillery or only infantry.

(*c*) Fords; where situated, whether they are commanded on either side by hills, woods, buildings, &c.; their depth (and here it may be noted that they should not exceed 2 ft. 8in. for guns and ammunition waggons, 3 ft. to 3 ft. 6 in. for infantry, according to the strength of the current, and

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4 ft. 4 in. for cavalry); the nature of bottom and strength of current.

(*d*) If water is good, and where watering places exist.

(*e*) If navigable; whether tidal or not; if liable to floods.

(*f*) Means for rafts, and what boats are available, and what size; whether any ferries exist.

(*g*) Nature of banks.

Q. How can the velocity of a stream be simply measured?

A. Measure a distance along the bank; throw in a piece of stick and note accurately the number of seconds it takes to float past that distance.

This gives the *surface* velocity. In streams of some depth it is better to take an ordinary walking stick; tie a weight to one end so as to make it float upright and note the number of seconds it takes to float past your measured distance as before.

In either case seven-tenths the number of feet per second gives the number of miles per hour.

Q. What are the points to be noted in reporting on roads?

A. Their general width, their gradients, whether metalled or not; whether raised or sunken; whether enclosed by walls, hedges, banks, &c.; whether in good order or not; what rivers, streams, &c., cross them, and nature of bridges (*vide* river) whether fairly easy for wheeled traffic or hilly and difficult; what other roads join or cross them; nature of country round about. especially if there is any commanding ground within range of field guns.

Q. What should be noted about railways?

A. Their gauge; whether double or single lines; description of rails used and how laid; whether the sleepers are laid lengthways or across the line; whether mostly on embankment or in cutting; whether easy to destroy tunnels, bridges, stations, water supply, rolling stock, &c.

Q. What should be reported about villages?

A. How situated and whether capable of being defended; their population, water supply and sources of food supply; what large buildings exist; whether there are many thatched roofs, also the accomodation they can afford in time of war for troops; their resources in supplies, horses, waggons, &c.; their extent; the nature of the country round about them; and nature of roads leading to and through them; whence their water supply is obtained; if telegraphic communication exists.

Q. What should be observed about a wood?

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A. Its extent and general situation; whether on hilly or level ground; if troops can march through it or only along the roads; and if roads exist; general nature of trees; whether there is underwood or not; if crossed by rivers or streams.

Q. What are the general points to be noted on seeing distant bodies of troops?

A. The dust caused by infantry is thick and hangs low; that from cavalry higher and more fleecy.

If reflection is seen from arms, it will be steadily brilliant if the troops are advancing, but duller and intermittent if they are marching away.

On a clear day a man with good eyesight can see troops 2,000 yards off; at 1,200 yards, he should be able to distinguish cavalry from infantry; at 900 yards he can see them clearly.

Q. What sounds indicate at night the arrival or departure of troops?

A. The rumbling of vehicles, barking of dogs, neighing of horses and groaning of camels being laden.

Q. What points should be noted about an enemy, if seen?

A. (*a*) His strength and composition.

(*b*) If the outposts are strong, well posted and vigilant.

(*c*) His position—and whether entrenched or not.

(*d*) Whether the main body is near or not.

Q. How can the strength of a body of troops on the march be estimated roughly?

A. 260 infantry in fours, at 3 miles an hour or 100 cavalry four abreast, at 4 miles an hour pass a fixed point per minute.

Q. What signs indicate a disorganized state of the enemy's troops?

A. Camps hastily abandoned; arms, necessaries and accoutrements thrown about along their line of march.

Q. What is a flanking patrol?

A. A patrol of some ten to twenty men sent to reconnoitre and advance along a route parallel to the line of march of the main body.

Q. Whence should they be furnished?

A. From the reserve of the advance or rear guards.

Q. What are their duties?

A. To examine special details such as farm buildings, woods, defiles, &c., at some distance on the flanks. They would

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be considered on a special duty and would have orders to rejoin again at a fixed point; they should take advantage of opportunities of communicating with the main body on the way by means of cross-roads if the distance be not too great.

Q. How would a flanking patrol act in crossing a bridge?

A. The point, reinforced from the rear if necessary, crosses over at the double, taking up the best defensive position beyond the bridge for covering the passage of the patrol; the latter file across and continue their march.

Q. If the line of march of the patrol led past a bridge on their flank and away from the main body, how would they act?

A. They would detach a group to guard it till they had passed.

AMBUSCADES.

Q. When the scouting cannot be done by cavalry owing to the difficult nature of the country, how should it be carried out by infantry?

A. They should be in parties of from 10 to 20 or 50 men. They should move as much as possible by night. Much can be done by them, especially in savage warfare; by lying in ambush on the paths frequented by the enemy, prisoners can be taken, and heavy losses inflicted upon them.

If your ambuscade is on a hill path, place your men on the lower side, as you can see better at night when looking upwards. Before halting, quit the path as far as possible from the spot where you intend to form your ambuscade so that your trail may not be easily seen; when going back to camp do so by a different path from that you went by.

The men must be cool and intelligent; there must be no cooking or smoking; as little talking as possible and that in low whispers; cooked rations for two or three days must be taken by the men if the food will keep good so long.

OUTPOST DUTY.

Q. What are outposts?

A. Detachments or advanced parties thrown forward by an army to prevent its being surprised.

Q. What are outposts for?

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A. Outposts may be called the eyes and ears of an army; their duties may be summed up briefly as *observation and resistance;* they communicate the result of their close observation to the army behind them, and they guard it from all dangers.

Q. What are the duties of outposts in order of importance?

A. 1st. To check the enemy's advance till the army can prepare for action.

2nd. To secure the repose of the army by the assurance of immunity from surprise, and by checking reconnaissance by the enemy.

3rd. To obtain as much information as possible about the enemy's position, &c.

Q. By what arm is an outpost usually furnished?

A. It may comprise all three; in that case the artillery would be with the reserve and the cavalry and infantry would be kept to the front.

Q. How would the several arms be best utilized?

A. The duty of keeping a sharp look-out, watching the enemy's duties, and quickly sending reports about him to the rear would fall specially to the cavalry. The infantry give an independent resistance to an enemy's forward movement, prevent the passage of spies and deserters, and afford support to the cavalry. The guns cover the retreat of the advanced portion of the outposts; or they are held ready close to a main route to go off to any point as the enemy's attack is developed.

Q. How are the relative fitness of cavalry, infantry, and artillery to be divided?

A. This depends on the nature of the ground, the state of the weather, and the time of day.

Cavalry will be found most suitable by day, in clear weather and in an open country.

Infantry by night, in foggy weather, and in close, broken, or very hilly country.

Artillery would never be employed by themselves, but they would be added when passes, defiles, bridges, &c., have to be held within the line of outposts.

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Mounted infantry now are of the greatest use on outpost duty.

Q. When covering a position in which an army intends to give battle, should the outposts try to engage with the enemy?

A. Certainly not; they should fall back as slowly as possible so as to give time to the main body to get under arms; and they should do this in perfect order, so as to avoid creating confusion among the troops they have been protecting.

Q. How should intelligence be conveyed from one part of the outposts to another?

A. By mounted orderlies and, above all, by signalling.

Q. How should the strength of the force to be employed on outpost be ruled?

A. It should be no larger than is absolutely necessary.

Q. Why so?

A. Because it is essential that troops should be fatigued as little as possible when on the line of march.

Q. What is the general rule for strength of outposts as laid down in the "Field Exercises"?

A. Not to exceed one-sixth of the total effective strength of the main body.

Q. What considerations are given in the same work to aid in forming calculations as to the number of men required?

A. 1. Whether the outposts are intended only to watch the enemy, and not to oppose his advance; to fall back gradually, disputing the ground, to a position in rear which will be occupied by the main body; or as might sometimes, though very rarely, be the case, to hold their ground on the enemy's advance, to allow the main body time to retreat.

2. Whether an enemy can advance against the whole or only against parts of the front and flanks; in the latter case fewer men will naturally be required.

3. Whether there are any commanding positions whence the enemy can be observed.

4. Whether the country is very broken or much wooded.

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5. Whether the ground covered by the outposts, and between them and the main body, is defensible by nature.

Q. Of what component parts do outposts consist?

A. 1. The picquets, including sentries or vedettes, patrols and detached posts.

2. The supports to the picquets.

3. The reserve of the outposts.

Q. From what part of the column should troops for outpost duty be detailed?

A. As a general rule from the advanced or rear guards, which will usually be, with an army, a day's march, or at least four or five miles from it. It is desirable that men who have not been engaged on that day, or wearied by previous extra duty, should be selected. If, therefore, the advanced guard has had much fighting, or has been considerably harassed, the outposts must be, if possible, furnished by fresh troops brought up from the rear, but no circumstances would justify the troops nearest the enemy in leaving those in rear unguarded.

Q. What rule should be observed in detailing the picquets, supports, and reserves?

A. Each of these bodies should consist of complete units under their own officers; it is specially directed that picquets and their supports shall be of the same sections, half-companies or companies.

Q. When are we told that reserves may sometimes be dispensed with?

A. When the force to be covered is small, or when the main body bivouacs in a defensive position where it can quickly form into order of battle.

Q. What are the instructions to be given by the commander of the outpost?

A. The general line of front of the whole.

The exact ground to be occupied by each.

Q. What is known of the position and probable movements of the enemy?

A. The direction in which it is most advisable to patrol.

The general measures to be taken in case of attack.

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The extent to which any post should be fortified.

How flags of truce, deserters, &c. are to be received.

The nature and frequency of reports.

Q. When a flag of truce approaches a sentry, what should he do?

A. One sentry will advance and halt the bearer of the flag of truce at such a distance as would prevent any of the party who compose it from overlooking the picquet post. The other sentry will report to the officer commanding the picquet.

If the flag of truce is merely the bearer of a letter or parcel, the picquet officer must receive it and forward it to Head Quarters, giving a receipt for it.

Q. How would a commander select his ground for his front line or "line of observation"?

A. He would look out for a ridge of hills, the bank of a river, or some marked features of ground.

Q. On what would the number of the supports depend?

A. On the number of main approaches to be watched.

Q. What should guide the strength of the supports?

A. Each support must be strong enough to furnish the picquets necessary to guard its own front.

Q. How should the supports and reserves march off to their ground?

A. With great caution, preceded by scouts.

Q. What sentries does a picquet furnish, and with what object?

A. Each picquet furnishes a chain of double sentries to watch the country in front, and to connect with neighbouring picquets.

Q. How far apart should these be?

A. From 200 to 400 yards apart for infantry, and up to 600 yards apart for cavalry *vedettes*.

Q. How far should sentries and vedettes be in advance of their picquets?

A. Sentries not more than 400 yards; vedettes up to 600 yards. In each case the sentry post should consist of two men.

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Q. How should the men of the double sentries patrol?

A. In turns, as far as possible, towards the post next to them, usually to the right; on dark nights they must patrol to their front about 40 yards.

Q. What rules guide the selection of a sentry's position?

A. He should have an extensive view to the front and flanks.

To see without being seen.

Connection with the neighbouring sentries.

Communication with the picquet.

Clear view of all approaches.

No ground between two sentries to be unseen by both.

Q. Should sentries fix bayonets?

A. Never by day or on bright moonlight nights, as their glitter would be noticed, but on dark nights or in very thick weather they should do so to protect themselves.

Q. Should sentries take off their valises?

A. No.

Q. Should the same men be usually mounted on the same posts?

A. Yes; always, so that they may get to know the ground well.

Q. What should particularly be pointed out to sentries?

A. The position of the picquet, and their line of retreat to it.

The direction of the enemy.

The position of neighbouring sentries.

The position of the examining guard.

Where the principal approaches lead to.

Q. How should communication be kept up between double sentries and picquets, or between advanced posts and the chain of sentries?

A. By single connecting sentries.

Q. When it is necessary to occupy a post to which access from the picquet is difficult, or which is at a distance from it, what should be done?

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A. A small detached party should be sent out under an officer or N.-C. O., consisting of just enough men to furnish the requisite number of sentries.

Q. How often should such a detached post be relieved?

A. About every six hours.

Q. How far in front of a detached post should the sentries be?

A. Infantry sentries quite close in front. Cavalry vedettes 200 to 300 yards in advance.

Q. What general rules are to be observed by such detached posts?

A. They should never light fires; the men should retain their equipment, and have their rifles always beside them.

Q. What are *examining parties?*

A. They are small parties of a N.-C. O. and from four to six men stationed on the main roads to examine all persons who wish to pass through the picquets.

Q. What will be the conduct of the double sentries on the approach of persons from the front?

A. One sentry will advance and halt them at a sufficient distance to prevent the picquet posts being overlooked. The other sentry would transmit a report to the commander of the examining party; the persons advancing would then either be questioned where they have been halted, or they would be blindfolded before being allowed to pass through the lines.

Q. Should deserters or suspected spies endeavour to pass through, what will be done with them?

A. They should be made to throw down their arms if they have any, and be immediately sent to the commander of the outpost.

Q. What should sentries do if any body of the enemy approaches their post?

A. They must at once give the alarm by firing at them; and they must go on firing as quickly as they can till they are driven in.

Q. Should a man desert from a picquet or be taken prisoner, what should be done?

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A. It must be at once reported to the commander and to the neighbouring picquets. The number of men on the picquet should be known not only to the officer but to all the men on picquet so that the absence of one of them may be the more easily detected.

Q. When fires are allowed, what precautions are taken?

A. Fires should not be lighted without special authority, and should be made out of observation of the enemy. The rallying point in case of attack should be in rear of the fire

Q. What are the rules regarding drums and bugles on picquet?

A. None are to be used except to sound the "Alert."

Q. Should any difference be made between the position of picquet sentries by day and by night?

A. Yes, by day they should be placed on heights and in commanding positions whence they can see all the country in front without exposing themselves to view; but at night they must be placed lower down so as not to show against the sky.

Q. Should outpost sentries pay compliments?

A. No; they simply stand at attention facing towards the enemy.

Q. What is the usual length of front watched by lines of sentries and vedettes?

A. For the former 800 to 1000 yards; for the latter about double that distance.

PATROLS.

Q. How many kinds of patrols from outposts are there in our service?

A. Three.

1. Visiting patrols.
2. Reconnoitring patrols.
3. Strong patrols.

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Q. What are *Visiting patrols?*

A. They consist of a N.-C.O. and one man, or in some cases two men. They are sent out from each picquet between reliefs to keep up the communications, to see that the sentries are alert, to help them if sick or wounded, and generally to see that all is well.

Visiting patrols are most needed in a close country and in bad weather.

Q. How should the patrol visit a chain of sentries?

A. It would first communicate with the nearest sentry of the next picquet on one flank; and then, proceeding along the front of the line of sentries, touch on the nearest sentry of the picquet on the other flank, returning by the rear to its own picquet.

Q. What are *Reconnoitring patrols?*

A. They usually consist of a N.-C.O. and two to four men; they are sent forward about three-quarters of a mile if of infantry (farther if cavalry) to examine ground and look out for the enemy.

Q. What are *Strong patrols?*

A. They are sent forward with the same sort of object as the last, but they are stronger, consisting of from a dozen men to a troop or company, or even more, and they are not necessarily secret. They should be furnished from the supports or reserve. They should seldom go forward more than a mile and should be accompanied by mounted orderlies.

They should ward off the enemy's reconnoitring patrols or dislodge his post and ascertain if possible what is behind.

Q. Should patrols be allowed to fire?

A. Reconnoitring and visiting patrols must above all things avoid doing so, lest they should give alarm thereby.

Strong patrols may occasionally act on the offensive to attain their object when stratagem fails. Unnecessary firing should however always be avoided.

Q. Should patrols wear their valises?

A. This and other matters of detail must be decided by the officer commanding the picquet.

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PICQUETS.

Q. What does the strength of a picquet depend on?

A. On the number of sentries to be furnished in addition to the men wanted for patrols and for detached posts.

A mounted orderly or two will usually be attached to a picquet.

Q. How should picquets be numbered and by whom?

A. From the right by the officer commanding.

Q. Where should the picquet be posted?

A. If possible on a main road in rear of the centre of the line of sentries, and keeping the latter in sight.

Q. How should picquets be placed with reference to bridges, defiles and causeways?

A. They should as a rule keep these between them and the enemy.

Q. How should picquets advance to take up a new position?

A. They must move with the greatest caution; one part as skirmishers with feelers in advance, the remainder in support. The whole picquet must remain under arms till the sentries are posted.

Q. How many sentries should an infantry picquet furnish?

A. From two to four double sentries.

Q. What then would be the usual strength of an infantry picquet?

A. From 25 to 50 men.

Q. What distance in rear of the line of sentries should the picquet be placed?

A. From 100 to 400 yards.

Q. What should be the position of a picquet with reference to woods, houses and gardens?

A. As there must absolutely be a clear view to the front, sentries may be placed along the extreme edge of a thinly planted wood while the picquet itself is in the wood.

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If this cannot be done, both the picquet and sentries must draw back some distance to the rear of the wood and the latter must be examined by frequent patrols.

A picquet should not be posted in a house, enclosed yard or garden where it might be caught in a trap.

Q. When outposts have to be placed in foggy weather, what precautions should be taken?

A. They should advance to the ground with a portion of the picquet extended.

Q. If circumstances require a different disposition of troops by night, when should the change be made?

A. Before dark but after dusk so that the altered positions may not be noticed by the enemy.

Q. When should picquets get under arms?

A. An hour before daylight.

Q. What is the most likely time for an attack?

A. At or about daybreak. Picquets and supports should therefore be relieved at that time so as to have a larger number of men available in case they are wanted.

Q. What rules should be observed as regards cooking, eating, or sleeping by day, so that two-thirds may be ready for immediate action?

A. Only one-third of the men on picquet should at the same time be cooking, eating, or sleeping.

At night all must be on the alert. When not on patrol or sentry duty the men may be allowed to smoke.

SUPPORTS.

Q. Should picquets and supports both come from the same corps?

A. Whenever this is possible, because the picquets are detached from the supports.

Q. What rules the strength of the supports?

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A. They should be of a strength equal to all in front of them, and one support to two or three picquets is enough.

Q. How far may the supports be in rear of the picquets?

A. Usually from 400 to 800 yards for infantry, but there are some cases in which the best line of resistance (or line occupied by the supports) may be close behind the best line of observation. In other words it may happen that the supports ought to be close behind the picquets or even on the same ground.

Q. By whom should infantry supports be accompanied?

A. By a few troopers to carry news.

Q. What rules should be observed as regards cooking, &c., in the case of supports?

A. The routine need not be quite as strict with them as with the picquets, but they must always be ready to march or to defend themselves at a moment's notice.

They may light fires and cook and may with advantage cook for the picquets also.

RESERVES.

Q. What is the reserve?

A. It is the main body of the troops detailed for outpost duty and is intended as a general support to the lines of picquets and supports.

Q. What would be the strength of the reserve?

A. From one-third to one-half of the whole strength of the outpost.

Q. Where should the reserve be placed?

A. Out of sight of the enemy, occasionally divided into two parts, on a main road. It must be sufficiently forward from the main body of the army to prevent the camp being shelled by the enemy.

Q. What are the duties of the reserve?

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A. They would move forward to help the supports, if necessary; or they occupy a good defensive position for the troops in front to fall back on.

Q. What would be the distance of the reserves from the line of supports?

A. It must vary according to circumstances, but may be roughly stated as being, for infantry, from 500 to 1000 yards.

Q. What rules are to be observed about cooking, sleeping, &c., in the case of reserves?

A. The reserve may bivouac, rest, cook, eat, and smoke, but must always be ready to act on the shortest notice.

Q. If artillery form part of the reserve, what would their functions be?

A. The guns may occasionally be detached with the supports, or even with the picquets; again, if the outpost line commands within range, defiles, or bridges over which the enemy must pass, guns might be placed to stop him.

Q. How should the guns in this case be protected?

A. By skirmishers thrown forward for the purpose.

Q. What number of infantry troops would be needed for outpost duty over a mile of country?

A. Roughly speaking about 500 men ought to furnish outpost for about that distance, but this would depend mainly on the nature of the country.

OFFICERS DUTIES.

Q. When an officer is placed in command of a picquet, from whom does he receive instructions?

A. From the commander of the outposts, or of the support, according to circumstances. These instructions he must note down at once.

Q. What will these orders indicate?

A. 1. The hour at which he is to mount picquet.

2. The ground he is to watch.

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3. The approximate position of the picquet, as also the positions of neighbouring picquets and supports.

4. The amount of resistance the picquet is to make if attacked by a superior force, and the general dispositions he is to make together with his line of retreat.

5. Whence he is to be supplied with camp requisites or provisions.

6. Where the picquet is to be posted at night, with the night positions of neighbouring picquets and supports.

Q. What should a report specify?

A. The picquet it eminates from.

The hour of sending.

How the information sent was obtained. Whether it is believed to be reliable. If the enemy was seen, the number of his force, &c.

Q. How should the picquet move off?

A. On passing beyond the line of supports, it must advance with great caution, with scouts out in front, and flankers.

Q. When an officer desires to send a message by signal, how will he act?

A. The message must be in writing; it must shew clearly the person to whom it is sent as well as the sender; also the exact hour and minute at which it was originated, and the place from which the information was sent to the signal station.

Q. On arriving at the line of observation (or line of sentries), what does the commander of the picquets do?

A. He sends his patrollers in front to examine suspicious ground within easy range; he posts his sentries; and endeavours to find and establish a good look-out place; he then communicates with the picquets on either side.

Q. What should the officer do after making the above arrangements?

A. Send a report of his preliminary dispositions to the commander of the outposts; after which he will consider how the picquet post may best be strengthened—by entrenchments, abattis, &c., and give necessary orders; and then he will visit his detached posts if he has any.

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Q. What duties has the commander of a picquet specially to perform?

A. 1. To consider what he would do if attacked and form his plans communicating them to his subordinates.

2. To make a rough sketch of his post and the adjoining ground.

3. To write down all information he can obtain.

Q. With what should officers provide themselves when going on outpost duty?

A. Compasses and appliances for making a sketch; a memorandum book with pencil; field glasses; map of the country; magnetic compass; watch.

Q. How are the flanks of a picquet to be protected?

A. The flanks of a line of picquet sentries should be thrown a little back; and if not protected by the nature of the country, a detached party under the command of an officer should be posted at some favorable position, to prevent the flank from being turned.

Q. How should communication be maintained?

A. By means of single sentries between the front line of sentries and the picquets; between the neighbouring picquets, and supports, by patrolling.

Q. How should provisions be supplied on picquet?

A. If possible they should be carried by the men ready cooked.

Q. What is the duty of officers as to inspecting reliefs?

A. They are to inspect reliefs when they go on and come off their posts.

Q. What should an officer do before marching off his company for outpost duty?

A. Inspect the arms, accoutrements, rations, &c., and take a nominal roll of his men in case of a deserter.

Q. How is the outpost system described in the Soldier's Pocket Book?

A. As a hand well opened; the nails being the outlying picquets, the middle joints of the fingers the supports, the knuckles the reserves, and the wrist the troops or camp to be protected from surprise.

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Q. Into how many reliefs is a picquet divided, and for what reason?

A. A picquet is divided into three reliefs, so as to furnish all the sentries, each relief to be kept separate. A portion should be retained for patrolling, a sentry should be placed over the arms, one or two men should also be posted with a telescope, on high ground if possible.

Q. What are the two systems of outpost duty, and which prevails in our service?

A. The cordon, and the patrol system; a combination of these two prevails in our service. The first is to prevent single individuals passing through the line; and the second aims mainly at keeping out bodies of the enemy.

Q. What dispositions must be made at night?

A. At night the cordon system adopted during the day is no longer practicable, unless either the number of sentries be very much increased, or the whole line be drawn in nearer to the main body. At night therefore double sentries with their reliefs close at hand will be placed at the roads, footpaths, and other avenues of approach from the enemy, and the ground between them will be well watched by means of constant patrols taken from the day sentries who are now withdrawn.

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4th Week.

Camping:—To unpack, pitch, strike, and pack tents; telling off and exercise of cooking, latrine, water, ration, and wood parties. ("Regulations for Encampments.")

Construction of field kitchens and latrines, trenching of camp, and water supply. (Sec. XVIII., Paras. 2 and 5, "Manual of Elementary Field Engineering.")

Bivouacs and their protections. (*Idem*, para. 15.)

Knotting, lashing, and the use of spars (*idem*, Sec. XV., paras. 1 to 4).

Wherever ground and transport is available, after sufficient instruction has been given in the details, the company will march from its quarters one morning soon after daylight with camp equipment, fuel, and uncooked rations for the day's consumption, and proceed, with military precautions, to the ground selected for the day, where tents will be pitched, dinners cooked, &c.

The examination by the commanding officer will ordinarily take place during the last day or two of the course.

CAMPING.

Q. How are camps formed?

A. Of huts or of tents, or they may be mere bivouacs made of brushwood, straw, branches of trees, or anything soldiers can find ready to hand.

Q. When are hut encampments chiefly used?

A. When an army occupies a defensive position for a long time, or during a siege; they are rarely made during a campaign.

Q. What should guide an officer in selecting a site for a camp?

A. The site for a "standing" camp is selected chiefly because it presents strategical advantages. That for a "flying" camp on account of some tactical advantage the ground may offer.

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Q. How should troops in the field be encamped?

A. So that they can be rapidly formed in a good position for action; the position should be such that it can be neither commanded nor turned.

The comfort of the troops in reference to the nature of the ground they may have to lie on, should, in conjunction with sanitary conditions, be the next consideration; if men are on very rough, steep, damp, or stony ground, their rest, and therefore, their health, and efficiency will suffer.

Q. Should troops be obliged to encamp in a position commanded by a neighbouring height what precautions should be taken?

A. In that case the height should be occupied by a picquet, or a detached body of troops, or according to circumstances be entrenched so that it may be successfully held by a small force.

Q. What are the next points to be considered in selecting a site for a camp?

A. The next points are the facilities which the site selected offers for obtaining water, wood, forage and straw; the relative importance of these things being shown by the order in which they are named. Very often they cannot be obtained on the site chosen as being a good defensive position; in which case they must be carried to the ground at great cost and labour, or a position inferior in a defensive point of view must be selected.

Q. What is the best site for a camp?

A. The site of a camp should be sandy or gravelly, and dry; clay is usually damp. The side or top of a hill is much to be preferred to the ground immediately at its base. Wet ground, surrounded by marshes should be avoided as much as possible. If troops have to be encamped on such a piece of ground for more than one night, drains should be cut through it to allow the water to flow away. The presence of moss generally indicates marshy ground.

Q. How is wood to be obtained?

A. By cutting down such trees as are most convenient for the purpose.

Q. Would it not then be best to encamp in a forest if possible?

A. No. It would be most unwise, as the mass of decaying leaves under the trees produce fever.

Q. What then is the best kind of ground on which to encamp?

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A. Grass is always healthy to encamp on. Brushwood is bad, unless on a gravelly or sandy soil;—it is perhaps better not to disturb it if the camp is merely for a night or two; but in the case of a standing camp, it should be cut down.

Newly ploughed ground should be avoided.

Ravines and water-courses must be carefully avoided. A sudden fall of rain will often in a mountainous country, convert a ravine into a large stream.

Q. What principles guide the disposition of a camp?

A. (*a*) The means of passing freely through the camp.

(*b*) The tents, bivouacs or huts should be arranged so as to secure the greatest amount of order, cleanliness and health.

(*c*) The camp should be as compact as possible.

Q. What sanitary precautions should be taken while in camp?

A. Whenever troops remain in camp more than three days, tents should be struck every two days. All arms, straw, and blankets should be removed from the ground covered by the tent, and the ground should be swept clean with a broom, or branches of trees, and left exposed to the sun and wind. Blankets, clothes, &c., should be spread out to air, and the tent roughly pitched in the intervals of the camp with slack ropes, and the fly loose to allow it to be well blown about; tents should never be pitched for occupation in the intervals. Men invariably at night urinate round the tent, and consequently pollute the ground.

If troops remain more than one night in camp, the tent flys should be rolled up the first thing every morning; in rainy weather, the fly may always be rolled up on the leeward side of the tent.

Q. Which way should the doors of the tents face?

A. As a rule they should face the head of the column, but this rule should never prevent their being turned away from the prevailing wind when necessary.

Q. What precautions are necessary as regards the trenching and draining of camps.

A. Trenches should be dug round tents, and a drain should connect these trenches so that the water may not lodge in them, but may run freely off. The first wet day after the camp is formed, officers commanding companies should personally examine the ground on which their companies are encamped, and should see that proper drains are constructed:—half-an-hour's work on a wet day, when the natural run of the water can be seen, will do more to keep the camp healthy than a day's labour in dry weather.

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Q. How is *camp equipment* for field service obtained?

A. These articles are supplied by the Ordance Store Department on requisitions being made on it.

Q. What are the duties of officers and N.C.O's who draw the equipment?

A. They should ascertain that every article is complete and in good condition, as the corps receiving it is responsible for any damage or deficiency that may be discovered after its issue. Moreover, in the field it is difficult to get articles replaced. When the issue is completed, the officer gives a receipt and receives a delivery voucher from the store-keeper.

Q. In packing the equipment in waggons for field service what points are to be attended to.

A. Care should be taken that those articles that are likely to be wanted first should be put in last. Thus, the blankets should be put in first, as, if the weather be wet, they may with advantage be left in the waggons until the tents are pitched: the entrenching tools being required first, should be put in last.

Q. When a camp as been laid out what is the next thing to be done?

A. As soon as the limits of the camp have been marked out arrangements should be made for its defence, shelter trenches or more extensive intrenchments constucted, or whatever kind of cover may be most suited to the circumstances of each case, and the length of time for which the camp is to be occupied being laid out, the troops told off to their respective positions, reserves detailed, picquets and outposts posted, and every precaution taken for the safety of the camp.

Q. What are the works to be carried out for the standing camp of a battalion?

A. 1. Tents to be neatly pitched according to order.

2. Cooking places marked out, and a kitchen constructed for each company.

3. Latrines dug.

4. A trench of 4 in. deep (the width of the spade) dug round the outside of each tent.

5. If the regiment is alone, make a watering place; if encamped as part of a division, this should be attended to by the A.Q.M.G.

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6. The natural drainage so improved that all water flowing from the tents into the small drains round them, should be led off by deeper drains into the nearest ravine or rivulet.

7. Make racks for arms in front of each company's tents.

8. Make paths with stones in front of each row of tents, &c.

9. Erect sentry boxes or shades.

Q. What space is required for the encampment of the various arms?

A. For a battalion of infantry on war footing, a frontage of 320 yards and a depth of 266 yards.

A regiment of cavalry — frontage 284 yards; depth 436 yards.

A battery of artillery — frontage 110 yards; depth 142 yards.

Q. When a battalion of infantry arrives on the ground on which it is to encamp, what is to be done?

A. The quarter and rear guards should be mounted immediately and placed by the second lieutenant-colonel.

Band, drummers, pioneers, &c., should join their companies which should be then told off in squads of one non-commissioned officer and 14 privates to each tent.

The colour-sergeant of the company should be told off for the rear tent, so that the officer commanding the company may know where to find him.

The arms will be piled, and accoutrements taken off and placed in rows on the ground or hung on the piles of arms.

1. Non-commissioned officer and 6 men to pitch tents, divided as follows, numbering from front to rear:—

Nos. 1 and 2, pole-men.

Nos. 3 and 4, peg-men.

Nos. 5 and 6, packers.

The following parties should then be told off and paraded by the adjutant:—

Cooking party:—Two men per company, under the sergeant cook.

Latrine party:—All the pioneers who carry pickaxes and shovels, and two men per company.

Water party:—One non-commissioned officer and two men per company, under a sergeant.

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Ration party :—A non-commissioned officer and two men per company, or more if a company is strong, under the quartermaster sergeant.

Wood party :—Two men, or more if requisite, and a non-commissioned officer per company.

The remainder will sit down close to the piles of arms.

The sergeant cook will select the place for the kitchens within the space marked out by the camp colours, and will make the kitchen as soon as the tools can be procured.

Troops should under all circumstances, have their dinners ready one hour-and-a-half after the rations are issued.

The sergeant of pioneers will at once begin the latrines, it being essential that the ground should not be fouled.

The Ration party will draw the rations.

The Wood party will if no fuel is issued seek for it, and bring it to the kitchen.

Q. What is now the duty of the officers commanding companies.

A. They should now examine the tents, to see that they are properly pitched; the arms, accoutrements, and blankets should be brought in; and a trench dug round each tent with a proper drain to carry off the water.

Q. How are valises and arms placed?

A. Valises are placed inside where each man's head will rest.

Arm racks should be made for each company; they should be formed of uprights 3 feet high, either of wood, earth, or stones, a pole being laid along the top and secured to the uprights. Each company should place its racks close behind the tents of the company immediately in front of it, so as to leave its private parade clear. These arm racks will be found very useful for cleaning accoutrements, and resting arms against.

At night, and in rainy weather, the tent ropes should be slackened, to prevent the tent pegs being drawn or the pole broken.

TENT PITCHING.

Q. Describe the method and give the words of command for pitching tents?

A. The captain parades front rank pole-men in single rank, on reverse flank of the company, and gives the word From the Left, 10 paces—Extend; they turn towards the piled arms and are dressed. The tents are then brought up, and

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First,—

No. 1 drives a peg into the ground where the pole will rest.

No. 2 joins the two pieces of pole together and hands them to No. 1.

Nos. 3 and 4 distribute the tent pegs.

Nos. 5 and 6 unpack the tent, door uppermost, facing the front. The fly is fastened.

Secondly,—

No. 1 takes the pole placing the end between his heels.

No. 2 drives cap on the pole.

Nos. 3, 4, 5, and 6 hold the 4 ropes to hold the tent when raised.

Thirdly,—

Nos. 1 and 2, when the bugle sounds 1 "G" or at "Raise Tents" will raise the pole, No. 1 getting inside to hold it steady and straight.

Nos. 3, 4, 5, and 6 drive in the pegs, commencing with the angle ropes.

If the tent has storm guys, they will be fixed and ends placed over 4 pegs driven at right angles to one another, 5 yards from pole, making 4 corners if tent has no storm guys the four red runners will be held each by a man, a non-commissioned officer seeing that the door points the proper way and that the fly is fastened.

STRIKING TENTS.

Q. What is the method of striking tents?

A. On the caution "prepare to strike tents."

No. 1 gets inside.

No. 2 closes the door.

Nos. 3, 4, 5, and 6 pull up the pegs, except the four angle pegs. On the bugle sounding 1 "G" or "Strike Tents," No. 1 lowers the pole. No. 2 separates the pole and ties it up Nos. 3, 4, 5, and 6 spread out the tent, fold it, and place it in the bag.

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CONSTRUCTION OF FIELD KITCHENS AND LATRINES, TRENCHING OF CAMP AND WATER SUPPLY.

Q. What is the most economical mode of cooking for a large party?

A. To dig a long trench for the fire, place the kettles on it (its width not being sufficient to allow them to drop into it) and cover up between them with stones and clay, that the fire fed from the windward end, may draw right through. A chimney can be built at the other end to increase the draught.

Q. Describe the *Broad Arrow Kitchen?*

A. It consists of three such trenches as that just described meeting under a turf chimney from 5 to 6 ft. high. The centre trench is traced in the direction from which the wind is blowing, the other two making angles of 40° or 45° with it. The width of the trenches is 9 inches, reduced to 6 inches where they pass under the base of the chimney, and widened at their mouths to promote a draught. The depth is 1 ft. at the base of chimney and 14 inches at the other end; or one foot throughout if the ground falls to the mouth of the trench.

The length of the trench required may be calculated from the details given in the annexed sketch.

The chimney is supported, where it passes over the trenches by flat stones, slates, wood covered with clay, &c.

Two trenches 10 ft. long are required for a company of 120 men.

Q. Describe the cooking vessels generally used in the field.

A. These are the *Flanders kettle* and the *Torrens kettle.* The first weighs 8¼ lbs., holds 12 quarts and cooks for 8 men. The second weighs 3¼ lbs., holds 6 quarts, and cooks for 5 men.

Q. What is a sunken *Flying Column Trench?*

A. This is a slight modification of the trench already described. It should be 6 feet long and 9 inches wide; the depth may be 4 inches under the chimney sloping down to 18 inches at a point 18 inches from the mouth, the next being kept with a level bottom at that depth. The mouth should be splayed out to a width of about 2 ft. 6 ins. to catch the wind.

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The kettles would be placed as already described; this trench holds 5 Flanders large kettles, or 9 Torrens kettles. The kettles should never be banked up with the loose earth out of the trench as that is generally damp and retards the boiling.

Time—fifteen minutes for two men to make, including a chimney two feet high.

Q. How can this last form of kitchen be made in wet or marshy ground?

A. A *Raised Flying column Trench* wonld then be used. This consists of two parallel walls of sods built up leaving between them a channel of the dimensions of the trench just described.

Q. What precautions should be taken to ensure cleanliness and safety?

A. Near the cooking places, a small pit should be dug as a receptacle for all cooking refuse; the old one to be covered with earth well rammed down and a new pit opened every two or three days. All grass round a fire place should be cut to prevent its catching fire. Firewood should be cut into pieces about a foot long and two inches thick.

Q. Describe the Field Oven recommended in the Soldier's Pocket Book?

A. The simplest method of making them is as follows:—Take any barrel (the more iron hoops on it the better), the head being out; lay it on its side, having scraped away the ground a little in the centre to make a bed for it; or if there is a bank near, excavate a place for it, taking care that the end of the barrel does not reach within 6 in. of the edge of the bank. Cover it over with a coating of about 6 or 8 in. of wet earth or thick mud, except at the open end, which is to be the mouth of the oven. Pile up some sand or earth to a thickness of about 6 in. over the mud, arranging for an opening 3 in. in diameter being left as a flue (to increase the draught) to lead from the upper side of the barrel, at the far end, through the mud and earth. This flue is only left open when the fire for heating is burning: when the bread is put in it should be covered over. Form an even surface of well-kneaded mud at the bottom within the barrel, to form a flooring to place the bread on. Light a fire within the barrel, and keep it up until the staves are burnt. You will then have a good oven of tough burnt clay, tied together by the iron barrel-hoops. When required for use, heat it as if it was an ordinary oven; when the ashes are drawn out and the bread put in, close the mouth with some boards or a piece of tin or iron from a case in which preserved potatoes or other perishable stores have been issued.

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FIELD KITCHENS.

Broad Arrow Kitchen.

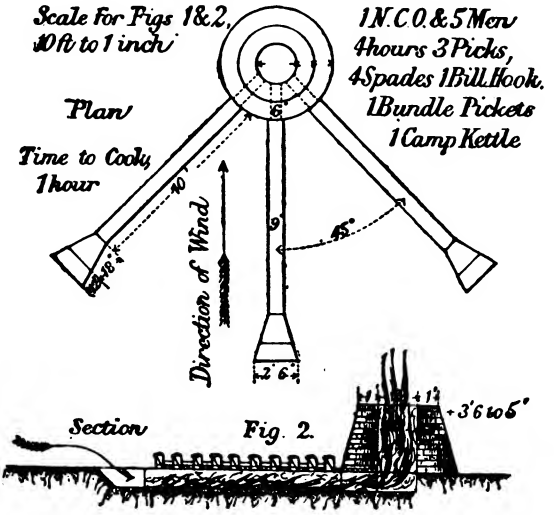

Fig. 2.

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Q. What are the regulations regarding field latrines, and how are they constructed?

A. Latrines should be made as soon as troops arrive on the ground; a small shallow trench will suffice for one night; and should be invariably filled up in the morning, before the troops march off. In standing camps latrines may be made with seats, the seat being a rough pole; additional comfort may be given by adding a top pole to form a back, as shown in sketch.

The trench should be about 2 ft. wide at the top and 1 ft. at the bottom, and from 3 to 4 feet deep. A fatigue party should throw a couple of inches of the driest earth obtainable over the soil every day; this, if carefully done, will prevent all smell. The earth may be dried by piling it close to the trenches of the field kitchens. Lime or charcoal may also be used to deodorize the soil in the trenches.

This work will generally be done by defaulters; it is recommended that the same sergeant should always have charge of them, so that he may be conversant with these duties, taking his orders daily from the quartermaster.

When the trench is filled up a fresh one should be dug near it.

Too much care cannot be bestowed in selecting the site of the latrines, and placing them so that no filtration from them may reach the water supply.

A small piece of canvas may be used to give some shelter to the latrine, or a rough screen, formed of branches or brushwood, may be arranged round it.

A length of at least 15 feet of trench should be provided per 100 men.

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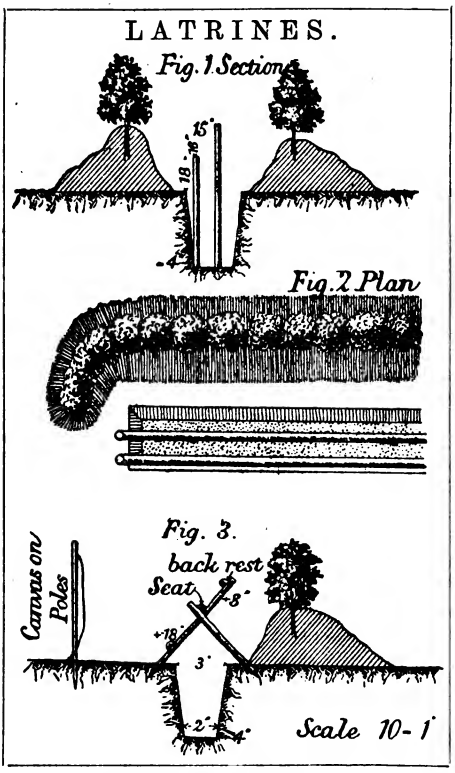

WATER SUPPLY.

Q. What quantity of water is required daily by men and animals for all purposes?

A. In calculating the quantity of water required per man for drinking and cooking, it may be put down at 6 pints in temperate, and 8 pints in tropical climates. A similar amount will just allow men to wash their bodies. In stationary camps, however, the minimum daily allowance per man should be 5 gallons for all purposes, washing clothes included. Horses not doing work will thrive well on six gallons a day. but require from 8 to 12 when at work, according to their condition and the nature of the work. A couple of gallons extra should, under all circumstances,

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be allowed for washing them. Oxen require about 6 or 7 gallons daily. Mules about the same, each pig or sheep ¼ gallon to a gallon. An officer should invariably accompany all cavalry watering parties.

Q. What is the weight of a cubic foot of water?

A. It weighs 62½ lbs. and contains about 6¼ gallons.

Q. How may good water be known?

A. It should be transparent and free from colour, taste, smell or deposit on standing; it should make a good lather with soap if it is to be used for cooking and washing, for which soft water is desirable.

Q. Whence is the supply usually obtained in the field?

A. From streams, ponds, or existing wells. In default of these it may be necessary to sink wells and make reservoirs.

Q. What precautions must be taken to protect the water supply?

A. On arriving in camp sentries will be at once posted over the watering places. Separate watering places for men and animals must be marked out, if the supply be from a lake, pond, or running stream. In the latter case two points should be marked off; above the first, water for drinking and cooking to be drawn; between the two, horses and cattle to be watered; and below the second, all washing and bathing to be carried on.

If convenient the water for the animals should be run into wooden troughs.

Q. What is to be the course when this cannot be done?

A. The banks should in that case be cut down and a hard bottom formed on the ramp, to prevent the animals sinking in. A barrier may be placed to prevent their going to far.

Q. How deep should the water be where beasts drink?

A. At least five or six inches.

Q. What is recommended in order to form a dipping place in a shallow stream?

A. Sinking a barrel in the bed of it.

Q. How may bad water be improved?

A. By boiling it; muddy water may be cleared by alum, in the proportion of six grains per gallon; it should be added some hours before the water is used.

Q. If the supply be from springs what should be done?

A. Each springhead should be opened up and surrounded by a low puddled wall to keep out surface water. Casks or cylinders made of brushwood, like gabions, make good linings for springs. After they are placed, puddled clay may be worked down between the banks and the cask or

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cylinders. The overflow may be received into a succession of casks or half barrels (which may with advantage have their insides charred) let into the ground close together, the overflow from the first passing into the second and so on; or deep narrow tanks with puddled sides may be constructed to catch the overflow.

Water from small ponds and shallow wells should be avoided, if there be a choice.

Q. How may filters be easily made?

A. Filters can be easily made by placing two barrels one within another, and ramming the space between with clean straw, coarse sand, and charcoal if it can be procured, or branches of trees with the bark taken off. The water is allowed to flow into the outer barrel and rises through holes pierced in the bottom of the inner barrel.

Q. What is meant by the term bivouac?

A. An encampment formed without huts or tents.

Q. Describe how shelter may be provided in bivouacs?

A. Bivouacs should be established on ground sheltered as much from the wind, and within reach of water and of wood, if the weather be cold.

Sleeping under trees or in woods gives some protection from cold and dew.

When camp fires are permitted the men should sleep round them in a circle, with their feet to the fire.

A bed of straw, leaves, or small boughs should be made to lie on; when these are not available, a hollow should be scraped for the hip. The men should club together so as to have a blanket underneath as well as over them, as a protection from cold.

A man can sleep warmly buried in snow.

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As a protection from wind, build up to windward a pile of earth or sods, logs of wood, stones, &c., according to circumstances.

Two forked sticks may be driven into the ground with a pole resting on them; branches are then laid resting on the pole, thick ends uppermost, at an angle of about 45 degrees, and the screen made good with smaller branches, ferns, &c.

A hurdle may be supported and treated in a similar way.

A waterproof sheet, blanket, or piece of canvas secured by poles and string.

A *tente d'abri* for four men may be formed with two blankets or waterproof sheets laced together at the ridge, the remaining two blankets being available for cover inside.

Q. When space and time admit of it, what is the best way of forming bivouacs?

A. Dig a circular trench about 15 ft. in diameter. The turf should be cut and placed so as to strengthen the interior; the earth should be thrown against it, and a bank 2 or 3 feet in height formed, a way in should be left, and the fire lighted in the middle; the men will lie down like the spokes of a wheel with their feet to the fire. If *tentes d'abri* are issued to the men, they may be buttoned together and pegged down to the top of the bank, and supported on their poles over the men's feet. Each bivouac will accommodate from 25 to 35 men.

Q. Why is it not advisable to bivouac under single trees?

A. Because there is always an eddy of wind there.

Q. When troops bivouac should the ground be occupied on exactly the same principles as if a tent encampment were being made?

A. Yes.

Q. How should troops bivouac in the open?

A. Cavalry should wheel into open column of squadrons, picket. their horses, and each man sleep in front of his own horse Infantry having wheeled into column should pile arms, and sleep as they then stand in the ranks, the officers in both instances sleeping on the reverse flank. The artillery having picketed their horses and placed the guns, waggons, &c., as if for a camp, should, like the cavalry, sleep opposite their horses.

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Q. How may men add to their comfort when sleeping in the open?

A. By making a bed of straw, leaves, or small boughs; if these cannot be procured a hollow should be scraped away for the hip to rest in.

Dry and sheltered positions should be always selected for bivouacs, and a good supply of wood and water ensured.

KNOTTING.

Q. What is a reef knot?

A. A knot used for joining two ropes together or the ends of one rope; it is easily undone.

Q. What is a single sheet bend used for?

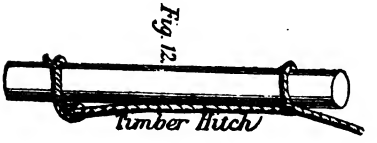
A. For joining ropes, better than a reef-knot, especially for ropes of different sizes; or for fastening a rope to a loop.

Fig. 10.

Q. What is a sheep-shank used for?

A. For shortening a rope without cutting it or when both ends are fastened.

Fig. 12.



Q. What is a timber hitch used for?

A. For dragging materials from place to place; as long as it is kept taut it cannot give way, but immediately it is slackened it comes off easily.

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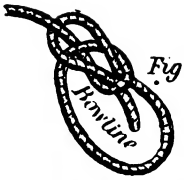


Fig. 4

Q. What is a bowline used for?

A. For making a loop which will not slip at the end of a line; it is difficult to undo; it is useful for making the draw loop of slip-nooses.

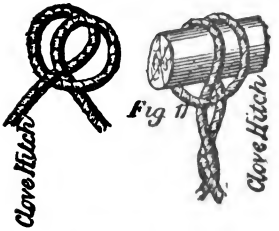


Fig 11

Q. What is a clove hitch used for?

A. For fastening a rope to a spar, or for making fast breast lines and painters.

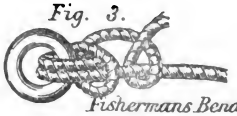


Fig. 3.

Q. What is a fisherman's bend used for?

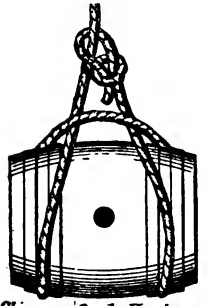
A. For making fast a rope to a ring. or cables to anchors or spars.

Q. How should casks be slung?

A. As shewn in annexed sketch.

To sling a cask horizontally, make a long bight with a bowline.

To sling a cask vertically, place the rope round the cask, and make a thumb knot on the top, open out the knot, and slip each half down the sides of the cask. Secure with a bowline at *a*.



To Sling a Cask Horizotally

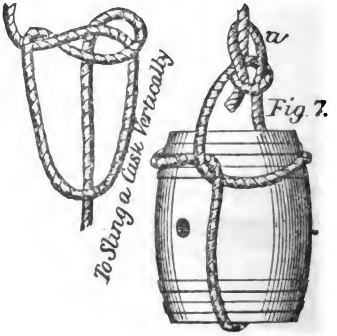


Fig. 7.

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Q. What are a carrick bend and a stopper hitch?

A. Carrick bend, for fastening the four guys to a derrick

Stopper hitch, for taking the strain on the fall of a tackle while it is being shifted on a capstan, &c. A gasket made of rope unstranded and plaited is best for the purpose.

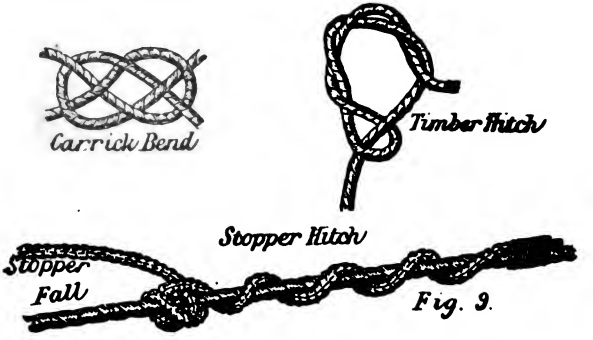

Fig. 9.

Q. What is a rack lashing?

A. Rack lashing, article of store, consists of an 8 foot length of 2 inch rope, with a sharp-pointed stick at one end. Used for fastening down ribands at the edge of the roadway of bridges. Commenced with a thumb knot at *a*, Fig. 8, the end twisted in the bight. The stick is then put into the bight, twisted against the clock till all is taut, and finally jammed in from right to left between the lashing and the outside of the riband. A rack lashing is readily improvised.

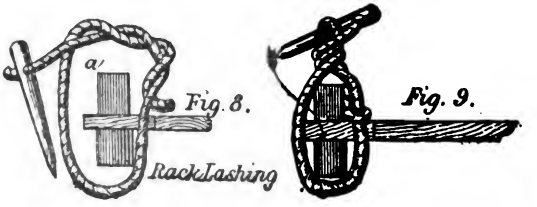

Fig. 8. Fig. 9.

Q. What other lashings are used?

A. Square or transom lashings, sheer lashings, and gyn lashings The first are used to lash one spar across another. Commenced by a clove hitch on spar A below B, and end

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twisted together, carried three times round the spars, as shown in figure, keeping outside previous turns on one spar and inside on the other; two or more frapping turns are then taken, the corners of the lashing being well "beaten in" during the process, finished off with two half hitches round the most convenient spar.

Wedges, with well rounded points, are often useful for tightening lashing. They are generally used by builders in scaffolding.

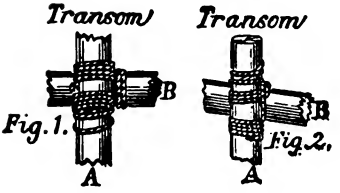


Fig. 1.

Fig. 2.

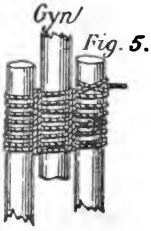


Fig. 5.

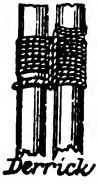


Fig. 3

Sheers

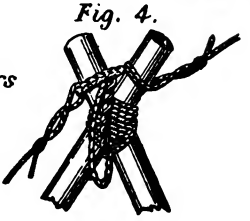
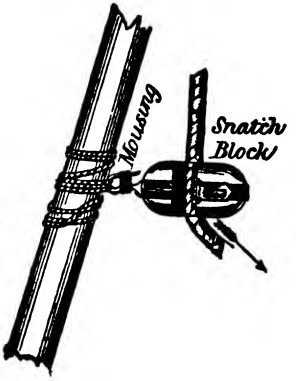


Fig. 4.

Fig. 6.



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Q. What is the mode of lashing shears?

A. The legs of the shears are laid side by side on a skid, and kept 2 inches apart by a wedge. The lashing is commenced with a clovehitch on one spar, carried six or more times round both spars without riding, then two frapping turns, and finished off with two half hitches round the spar?

Q. How are blocks used?

A. Blocks are used for the purpose of changing the direction of ropes. A combination of two or more blocks forms a *tackle*, by which power is gained. They are made of wood or iron; they are called, single double, treble, etc., according to the number of sheaves, which are of metal or hard wood, and revolve on the pin, which should be kept well lubricated.

Snatch blocks, Fig 3, are single blocks, with an opening on one side to admit a rope without passing its end through.

Q. How is a block lashed to a spar?

A. The back of the hook is laid against the spar, a clove hitch is taken round the spar above the hook, then several turns round the hook and spar, and some more turns round the spar below the hook, finished off with two half hitches.

The hook of a block is *moused* by taking some turns round it with spun yarn or very light lashing, as shown in sketch.

Fig 6, also shows a single block lashed to the head of a spar.

MEMORANDA RELATING TO ROPES.

Ropes, both hemp and iron or steel wire, are distinguished, as to size, by their circumference in inches.

Government hemp rope has a coloured thread running through the core,

Hemp rope, when new, stretches very freely.

Hemp rope should not be continuously worked up to a greater strain than one-fifth of the breaking weight.

Iron wire rope is rather less than four times as heavy as hemp rope of the same size.

Steel wire rope is from 2 to 2½ times as strong as iron wire.

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ADDENDUM.

Q. What is a gabion?

A. A gabion is a strong cylindrical basket without top or bottom, 2 feet in diameter and 3 feet high when in position; they are filled with earth and used as a revetment or retaining wall; three men can make one in two hours; they weigh from 35 to 60 lbs.

Q. What is a fascine?

A. A military faggot or bundle of brushwood, length 18 feet; diameter 9 inches; weight 140 to 150 lbs; five men can make one in an hour.

The brushwood is bound together with "gads" or wire at intervals of 18 inches.

Fascines, like gabions are used for revetments.

Q. What are abattis?

A. They are obstacles to impede the advance of an enemy; they are formed of felled trees or limbs of trees firmly secured and interlaced with the branches turned towards the enemy and pointed.

Sometimes they are formed of trees half sawn through; indeed this is the best form when trees are found in suitable rows.

Abattis should be 5 ft. high and protected from artillery fire by a trench.

A regular abattis of branches can be made 20 yards long, 15 ft. wide, by 10 men in 6 hours if materials are all supplied to hand.

Q. What is a berm?

A. It is a space left clear of earth between the foot of the slope of a parapet and the excavation from which the earth was taken to form the parapet.

Q. What is a revetment?

A. A support of any kind, constructed to retain earth at a slope steeper than it would stand at alone.

Q. What is a ramp?

A. A sloping road to enable horses or waggons to pass up and down to different parts of works.

Q. What is a parapet?

A. A mass of earth raised to give cover from the enemy's fire?

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Q. What are breastworks?

A. Low parapets are sometimes so called.

Q. What are entanglements?

A. Obstacles (as in the case of abatis) to impede the advance of an enemy; they are usually formed by cutting trees, brushwood, &c. half-way through at a height of about 3 ft., and interlacing or securing the branches by pickets to the ground. Good entanglements can be made in hop gardens and vineyards.

Wire entanglements are better still, as they give no cover, are not easily damaged by artillery fire, and are a most formidable obstacle to cavalry.

Q. What is the usual proportion of the three arms in most European armies?

A. One cavalry soldier to 8 infantry, and 3 guns per thousand of the other two arms.

Q. What is meant by a tactical unit?

A. The smallest independent command of one man.

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